

Scottish relief at Millan's tertiary council proposals

by Simon Midgley

The Scottish universities this week gave a cautious welcome to the announcement of more detailed proposals for the establishment of a tertiary education council.

They appear to have heaved a collective sigh of relief that Mr Millan, Secretary of State, has not taken up a suggestion that the new body should have executive powers which could have been used to limit their independence.

In November the Committee of Principals and Deans of Central Institutions (COPADOCI) published draft proposals on behalf of 11 of its members which could have led to the eight universities being absorbed into a single tertiary education structure subject to "strong planning and coordinating machinery".

As it is, although Mr Millan appears to have taken up many of COPADOCI's suggestions in his recently published consultative document on the tertiary education council proposals, he is only proposing that the council should have advisory powers.

He has ignored the Central Institution's suggestion that consideration should be given "to the delegation of executive powers to the council so that in the longer term it might develop in such a way as to enable it to discharge in relation to the whole of tertiary education those functions which are presently carried out by the University Grants Committee". Mr Harry Cummins, secretary of COPADOCI, and principal of Dundee College of Technology, welcomed the consultative paper's proposals "by and large" but expressed disappointment that it did not take up the question of executive powers.

'Financial help needed now for alternative energy research'

If North Sea Oil and gas reserves fall to about 20 years time it is that that Britain's Research Councils be given enough financial support now to enable them to look into alternative energy sources and conservation methods.

This view was expressed by Sir Frederick Stacey, chairman to the Advisory Board for the Research Councils, recently when announcing a £4 million increase in the budget for fundamental scientific research work in the year 1978-79.

The overall spending on scientific research is to rise to £2,545 million next year and is to remain at this level for the next three years. Spending has fallen since 1972-73, when it was as high as £288 million, because of public expenditure cuts.

Next year's allocation will be divided in the following way: the Agricultural Research Council, £21.7m or 8.5 per cent; the Medical Research Council, £43.7m or 17.2 per cent; the Natural Environment Research Council, £28.6m or 11.3 per cent; the Science Research Council, £130.2m or 5.7 per cent; the Social Science Research Council, £13.6m or 5.7 per cent; the Natural History Museum, £4.2m or 0.7 per cent; and the Royal Society, £2.2m or 0.5 per cent.

Much of the increase will go for engineering investigations supported

by the Science Research Council in polymer science, marine technology, reaching in the use of microcomputer systems and micro-electronics.

Some will go to the Agricultural Research Council for studies in genetic engineering to increase potato yields of plants, to improve resistance to pests and diseases, and find other ways of raising crop productivity.

Outgoing research by the councils over the next four years, Sir Frederick said, that the advisory board to the research councils had recommended planning guidelines for annual growth to the Secretary of State up until 1981-82.

These envisaged a 1.5 per cent annual growth for the ARC, a 1.6 per cent annual growth for the SRC, a 2.5 per cent annual growth for the SSRC and decline of 1.7 per cent for the SRC.

Because of the original expenditure cuts research on several high priority projects in nuclear physics and space satellites are being phased out.

Sir Frederick added that the NERC, which runs a fleet of oceanographic research vessels, would experience a problem in 1980 to come finding the finances to replace some of the ships which were getting old.

City officers win pay claim

Some experimental officers at City University will receive more than £600 a year after a claim made by the Association of University Teachers.

All the officers will have their salary expectation increased by at least £800 a year, not including the salary settlement from October 1 last year which is still being negotiated. Their new salary maximum will be £5,077.

The settlement follows a claim made by the Association of University Teachers to the Central Arbitration

Committee set up under the 1975 Employment Protection Act. The AUT said the university was not applying the national agreement and just before the case was to come before the Central Arbitration Committee the university agreed to pay the correct rates.

Mr John Akker, AUT deputy general secretary, said: "We are naturally delighted that this has been settled to such advantage for the staff involved. It clearly demonstrates the value of the AUT in representing these cases to independent arbitration."

Export-linked courses hit by cutback—report

by Sue Reid

Scores of polytechnic courses linked to industrial needs will be forced to close because of the Government cutback in overseas student numbers next year, a special report to the Department of Trade and Industry warns.

The report, prepared by Leicester Polytechnic, alleges that because of the speed of the foreign numbers cutback some polytechnics will not be able to recruit from overseas at all next year and many of the specialized courses with high foreign enrolments will be jeopardized.

The Department of Education and Science has called for overseas numbers to be reduced to the 1975-76 level of 75,000, 5,000 fewer than the current total. To achieve this the 1978-79 intake will have to be drastically pruned.

Professor S. D. Smith, the acting principal of Edinburgh University, said that he welcomed the idea of a tertiary education council in principle but the consultative paper was "in a very poor state".

"We like the fact that it is a consultative, advisory body because that is what we have always wanted. We could not conceive in any circumstances that we would lose our independence of action which has been the essence of the university in the United Kingdom for so long."

"All the Scottish universities have said we want to stay with the UGC because we value the UGC connection and also we value very greatly the independence we receive through our connections with the UGC."

"In so far as the Central Institution's suggestion would tend to take this away from us or in so far as any central body might interfere in our functions we would think this would undermine our position which we enjoy now with the UGC."

An inter-university working party is currently considering the consultative document and hopes to make its views known by mid-March.



The British lily has gone to sleep. This is one of 356 plantaglyphs of gardens now on show at the Kinshasa exhibition hall, Leicester Polytechnic, as part of an exhibition organized by East Midlands Arts and Coiled Gardens of Delight.

British Council 'Guard against rigid training'

If you dispensed with the British Council there would be a need to create something very similar to replace it, says the Foreign Secretary, said this week.

Addressing MPs on the Commons, Expenditure Committee during their final hearing on last year's controversial "Think Tank" report on British overseas representation, he emphasized the value of the British Council's independence.

Referring to the council's cultural ambassador role, Dr Owen said that both France and Germany spent more on comparable diplomatic and cultural activity. As far as the work of the council was being an increasingly important part of its functions.

In August the Central Policy Review Staff (known as the "Think Tank") called for the complete abolition of the council and the smaller agencies concerned with educational work abroad.

In general Dr Owen said that the CPRS study had contributed much valuable analysis—although he did not accept some of its main recommendations.

He added that there had been a certain over-reaction to some of the study's recommendations.

recruits on an international basis. They include textile technology programmes at Huddersfield and Leicester, ceramics technology courses at North Staffordshire Polytechnic, maritime studies at Plymouth and naval architecture at Sunderland.

The report outlines the Leicester Polytechnic case in detail. It says: "To achieve a quota of 325 (the 1975-76 level) by one step in September 1978 the total overseas student enrolment would have to be reduced to 57. The textile technology 'uplift' is an intake of at least 50. This would leave a pool of just seven overseas enrolments for the remainder of the polytechnic."

Leicester is now urging a change in the policy to allow polytechnics to achieve the collection to 1975-76 levels over three years. This would allow the specialized programmes with higher foreign numbers to survive.

A dossier of comments from industrialists involved in the textile technology industry is included in the report, the first a Swiss agency for a leading machine manufacturer states: "From Switzerland and Austria I know personally about 20 students who have been in Leicester Polytechnic and all of them are customers of our firm. Just two firms have bought machinery together worth more than £6m during the last 15 years."

The National Institute of A leading lecturers' union has

been set up in the campaign for a literacy unit in the Department of Education. The unit will be set up with a grant of £100,000 for a year.

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London poly £50,000 penalty

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exchange programmes. But "get out" clauses represent a major climbdown by the UGC.

Under an important legal clause the DES has introduced a new clause which will allow it to charge extramural fees and operate without contravening the Education Act. The clause is in the DES circular 8/77 in the range of students as "overseas" through a salary up of residence quality. It also retains overseas as "specified students".

A pilot exercise outlined in the report has confirmed significantly higher numbers of students fall into the new "specified" category and will be liable to quota restrictions.

The report states: "A pilot exercise at one typical minimal level showed that 141 of 148 time students were overseas, the 141 definition but 179 were regarded as specified by the DES definition, an increase of 38 per cent."

A second set of one of the polytechnics has shown that 424 full time and 424 part time students could be classified as "specified" under the new definition. This would increase to 140, a four per cent

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Lecturers call for national commission

by Sue Reid

The National Institute of A leading lecturers' union has been set up in the campaign for a literacy unit in the Department of Education.

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Mystery of the student occupation at PNL and a £560 telephone bill

by Simon Midgley

Last year's student occupation at the Polytechnic of North London's administration block led to a £5,500 bill for damages, loss, and other expenses attributable to the occupiers' actions. This is revealed in the latest report in the government by Mr. Terence Miller, the PNL's director.

The eight-week occupation, from March 3 to April 30, was in protest over student fee increases and the Inner London Education Authority's overspend on the polytechnic.

Mr. Miller said that the students' union accepted responsibility only for some personal losses. As a result it had paid £232 in compensation, but it had disclaimed responsibility for the remainder on the grounds that its policy had not included doing any damage.

The damage, the union claimed,

could have only been the work of "extremists" over whom it had no control.

However, the unknown extremists may have been they succeeded in forcing upon the site in my office and in increasing the bill in my mind-line telephone from its normal £20 a quarter to £560, Mr. Miller comments.

He adds that the polytechnic cannot take legal steps against the students' union to recover its losses because the students' union is not a corporate body and in any case was technically a part of the polytechnic.

By contrast, the students' union could, if it wished, sue the polytechnic.

The occupation interrupted the normal cycle of exam, academic board and faculty board meetings, and procedures connected with the admission of students for the year 1977-78 were also mostly interrupted, the report states.

The effect of this last cannot even now be completely assessed,

but it is certain that many applicants who would have come to the polytechnic this autumn did not arrive, having had to apply elsewhere.

A more important, long-lasting, consequence of the occupation, however, was its effect on staff morale.

"For a number of reasons, but mainly because of different attitudes taken by representatives of the staff unions, the staff on the Holloway Road site tended to become divided and took up somewhat distinct attitudes (a) to the students' union and the 'occupying force' and (b) to the directorate.

"The effect of these diverse positions and the tensions between them was unfortunate in that it led to general feelings of irritation and discontent. These symptoms of discontent took a long time to dissipate, and to some extent still linger as a kind of bad taste long after the events which produced them."



The first visual arts fellowship in the South East has been awarded to Mr. Andrzej Juckowski (above), an painter in residence at the University of Surrey. It has been offered by South East Arts in conjunction with the Arts Council of Great Britain.

Register of shares is sought

by Judith Judd

Aberdeen University is calling on all British universities to join in a collection of information about university shareholdings. The aim is to enable pressure to be put on companies of whose activities the universities disapprove.

Inquiries have already been sent out to universities after a decision of the university court at Aberdeen. Aberdeen itself has agreed to sell all it holds in three British companies with subsidiaries or associated companies in South Africa.

The decision was taken by the university court, acting on the recommendation in an interim report by a committee set up by the court to examine the university's investments in 18 companies.

The companies were those which appeared in a "blacklist" prepared by the National Union of Students and the Anti-Apartheid Movement. The committee was set up after students occupied the university administration building in protest against South African investments.

The university will keep its holdings in some of the companies, but information on their activities in South Africa will be monitored.

Hull University has also issued a statement after recent student protests about its holdings in companies with subsidiaries in South Africa.

The university said its portfolio of shares was being diversified to obtain a wide spread of investments. During the past two years it had disposed of the bulk of its Reckitt and Colman shares.

Open college link-up aids part-timers

by Maggie Richards

Five colleges in North West England which offer mature students an alternative route into higher education have formed themselves into an open college federation.

The aim of the federation is to establish stronger links between the five colleges, and with the higher education institutions participating in the scheme. It is also hoped that other colleges in the region will adopt the system and join the federation.

Courses taught at the five colleges are aimed at mature students studying part-time, on the completion of the required number of course units, can apply for admission to undergraduate degree courses at Lancaster University, Preston Polytechnic, and four colleges whose degree courses are validated by Lancaster.

The open college system was pioneered at Nelson and Colne College in April, 1976, and the first students to complete the necessary six units of study will emerge from the college later this year.

The five other colleges of the new federation—West Cumbria, Accrington and Rossendale, Lancaster College of Adult Education, and Morecambe College of Further Education—are now teaching the four units of the first stage.

All the courses are administered by an academic committee made up of representatives from the associated institutions, and Lancaster and Cumbria education authorities. The committee is responsible in the university senate and academic board of the polytechnic.

The creation of the federation has been welcomed by Sir Charles Carter, vice-chancellor of Lancaster University. He commented: "Setting up an open college federation constitutes an important step forward in meeting the needs of mature students. It shows that the university, polytechnic and the member colleges are interested in tackling the problems of mature students rather than working in isolation.

"We hope that the interest shown in the open college courses by applicants, colleges and local authorities in the region will continue to develop. We see the course as not only offering a valuable alternative to O and A level examinations, but also providing a programme of studies worth taking for their own sake."

Nelson and Colne College developed the course in a bid to provide mature students with a more suitable syllabus for adult learners.

Mr. David Moore, the college principal explained: "Mature students need more flexible learning opportunities and are capable of coping with many different approaches.

"The open college units draw on ideas from many disciplines, and do not, in any case, fit the orthodox subject divisions found at school."

The initial units include an introduction to study techniques, basic concepts and scientific method.

The National Extension College at Cambridge hopes to make these units available in correspondence form shortly.

£125,000 gift to British Museum

The Wolfson Foundation has given £125,000 to the British Museum for the reorganization and exhibition of its reserve collections of classical sculptures and inscriptions.

In brief

Bilingual student journal launched

The first totally bilingual journal went on sale in all over Wales this week. *En Cymru* (in Wales), the journal, is published by the first independent student journal, and the first "bilingual" journal in Wales.

New guide to language courses

A comprehensive and up-to-date guide to language courses in the UK, including other colleges, is published by the Standing Committee of Heads of Modern Languages in Polytechnics and Other Colleges. Published in January by a Centre for Information on Language Teaching and Research (CLIL), the guide is intended for careers advisers, heads of department and deans. Copies can be obtained from CLIL, 20, Carlton House, Ten, London, SW1Y 5AP (price £5).

Summer jobs

Details of summer jobs available in Britain and abroad are listed in three handbooks just published: "Summer Jobs in Britain", "Summer Jobs Abroad", and the "Directory of summer employment in America", are available from the British Council, 11, St. James's Place, London, W1P 0LP. The American directory is priced at £1.95 each.

Smeaton medal

Sir Leonard Bickshaw, the last chairman of Vickers Obituary, has been awarded the 1977 Smeaton Medal in recognition of his outstanding contribution to the development of advanced engineering techniques. The medal was established in 1974 by the Institution of Mechanical Engineers (IME) in conjunction with the Smeaton Society of Civil Engineers to mark the 250th anniversary of the life of the eminent engineer, John Smeaton (1724-1792), best known for his construction of a lighthouse at Eddystone Rock in 1759.

A lesson from James Watt

Technological universities must be aware of the need to provide a congenial and hospitable environment in which the inventor of ideas is able to flourish, Dr. John Watt, President of the Watt Club, said last week.

In his presidential address to the club at Heriot-Watt University, Dr. Watt, chairman of the Watt Club, said that the club's purpose was to provide a congenial and hospitable environment in which the inventor of ideas is able to flourish.

He said that a study of Watt's life contained useful lessons in education and training, innovation and financial risk-taking and the identification and grooming of entrepreneurial talent.

"Surely the message for a technological university is that it should seek to provide that subtle climate of environment in which habits of thought are not pre-programmed but encouraged to range widely, to inquire, probe and open up a vista."

"We cannot expect to plan a 'correct environment' in which progress will flourish. If we do, we are remarkably arrogant. But it should at least be aware of the need to encourage that sense of wonder which seems to me to be at the essence of the life of James Watt," he said.

Dr. Watt added that education was still inclined to structure the educational experience in a narrow, explicit way. "The important thing is to avoid closed systems of thought and institutional arrangements for education and training for the development of management and flexibility."

Older and wiser? Sue Reid reports on two adult Open University success stories.

'Highly motivated' OU graduates want to go on

The great majority of Open University first degree graduates, who apply to continue their studies at other institutions of further and higher education are offered places, according to the initial findings of a new research survey.

The survey, carried out by the university last year, shows that there is a very high level of student interest in continuing beyond an ordinary degree level qualification.

Of the 1,500 students interviewed, each of whom had graduated between 1971 and 1975, 40 per cent were working towards an honours degree within the Open University or had already obtained this level of qualification. Only 25 per cent had definitely ruled out the possibility of continuing to honours, and 7 per cent of these had proceeded directly to postgraduate studies or vocational training courses.

Nearly three quarters of the sample not employed in education on starting an Open University degree programme, and 65 per cent of those working as teachers or lecturers, were interested in studying for a higher degree with the university.

More than 2,000 of those interviewed had considered using their Open University qualifications as a basis for applications to other educational institutions, and a significant number of graduates had already tested out the value of their Open University qualification as a means of entry to other courses.

Overall, 86 per cent of the graduates who had applied had been offered places elsewhere. This, the survey maintains, shows that Open University qualifications are fully recognized and that its graduates are highly regarded by other institutions.

Trade unions urged to seek educational leave as part of lifelong learning drive

A call for a coherent system of recurrent education designed to offer opportunities throughout life is made in a new pamphlet produced by the Young Fabians.

But the pamphlet, by Tom Schiller, a former research associate with the trade union research unit at Ruskin College, and now a research fellow at Glasgow University, points out the risks involved if there is too facile an acceptance of the principle.

"The pamphlet, 'Education Through Life', also argues greater efforts to bring about more cooperation between educationists and the industrial sector.

It points out that the provision of adult education opportunities is a more economic proposition during a recession—when there is a greater demand for education and training to meet the needs of the unemployed—but argues that recurrent education in industry should embrace all workers, and not be used as a "fire-fighting" device to occupy the time of the jobless.

Suggesting a number of steps to

be taken towards achieving the goal of lifelong education, the pamphlet argues that there cannot be one overall blueprint. "Progress towards recurrent education will be evolutionary," it says.

Commenting on one of the side-effects of the adult literacy campaign, Mr. Schiller says it revealed an enormous latent demand for education—a concept hitherto largely excluded from the vocabulary of educational planners.

"The campaign has shown that for many people a return to education is a real option if, and only if, they are actively informed of its availability."

Trade unions are urged to press for educational leave, as part of improved working conditions—particularly in present times when bargaining power is restricted by wage restraint. Powerful unions, it is suggested, could spearhead the drive, with the eventual extension of the right of educational leave to the whole population.

On financial implications, the pamphlet says the direct cost of implementing a system of recurrent education must be weighed up against the present "negative" costs—the costs of inaction, of allowing people to remain without education, and of the more striking problems of increasing fees and reduced availability of grants.

He claimed: "Only the last of these problems can be solved by Government action."

The survey concludes: "It is clear that a means has to be found to enable highly motivated students who have already proved their ability to succeed in under-take the further training necessary for them to make a maximum contribution to the community."



Cheers! It's Pamela, the barmaid BA

Barmaid Mr. Pamela Edwards (left) is 38, and works at The Queen in Abingdon, Berkshire. She has just graduated from the Open University with a BA, after nearly having to drop out of the course because of lack of funds. She has five children, earns £25 a week behind the pumps, and also receives family income supplement.

She was one of nearly 1,500 Open University students to apply for financial help from the university's newly established hardship fund in 1976. Altogether the fund allocated a total of £21,977 that year. Last year, because of the increase, £16,700 was awarded to 2,651 students in need. Open University courses in need of extra funds.

At a special press conference in London last week, Mrs. Edwards spoke of the sacrifices she had made to become a graduate. "I might have been close to giving up without the help of the hardship fund. My local authority has paid my summer school fees, but I have five children to support."

She now plans to take a post-graduate certificate of education and has been offered a place at Abingdon College of Higher Education.

The line-up of hand-picked Open University graduates featured before the press this year included Mrs. Jill Johnson, a widow and self-employed plant life contractor. She found the university's fees "tolerable", says the degree course changed her life.

But despite the fact that some students cope with the fees which now stand at £52 for each credit course, Sir Walter Perry, the vice-chancellor, gave a warning about the social problems of studying part-time. "And possibly the more striking problems of increasing fees and reduced availability of grants."

He claimed: "Only the last of these problems can be solved by Government action."

Marlborough archives go to BL

by Judith Judd

The Marlborough archives, which form part of the estate of the 11th Duke of Marlborough, are to go to the British Library, Lord Donaldson, Minister for the Arts announced in the Lords last week.

The decision, which has been taken on the advice of the Royal Commission on Historical Manuscripts, is against the wish of members of the Duke of Marlborough's family that the papers should be placed with the other family collections at Marlborough College, Cambridge.

In a written reply to a question from Lord Pym, Lord Donaldson said he was aware of the wishes of the duke's family.

"In deciding that they should be assigned to the British Library, I have in particular been influenced by the Commission's advice that the cataloguing, arrangement and scholarly use of the Marlborough archives will require constant reference to and close comparison with other papers of the period already held by the British Library."

Lord Donaldson said he had also been impressed by the scale of the resources required for the proper cataloguing and conservation of the collection which contains about 30,000 documents.

The archives include the official and personal papers and correspondence of John Churchill, first duke of Marlborough, the papers and correspondence of his wife, Sarah, and the official and personal papers of their son-in-law, Charles Spencer, third earl of Sunderland.

Aid to children

The Nuffield Foundation has made a grant to the School of Oriental and African Studies in London University to investigate ways in which Chinese children in school in Britain may be helped in overcoming linguistic and other difficulties.

MODERN LANGUAGES RELATED STUDIES

An exciting opportunity for teachers/lecturers currently serving in British secondary/tertiary establishments to exchange their post for a year or a term with a colleague to

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Your pupils/students will have the advantage of being taught by a native speaker while you are away. You will have the chance to renew your fluency in the language you teach and update your knowledge of the country. Your post is secure in your absence.

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Specialists...or Jacks of all trades?

How do social workers see their job? In New Society, out today, Olive Stevenson, professor of social policy and social work at the University of Keele, discusses a national research project which throws new light on the generic/specialist debate.

NEWSociety

OUT TODAY 25p

ACADEMIC DEVELOPMENTS

Part-time art and design MA for lecturers

by Simon Midgley

A further dimension has been added to the in-service training provision for teachers, lecturers and others professionally engaged in art and design education in the North West: an MA in post-graduate diploma in art education.

Manchester Polytechnic's department of education is now offering advanced level courses in art and design education leading to these awards. The evening courses, which began in October 1977 and are validated by the CNA, were designed by the Centre for Art and Design Education, and were created for teachers and lecturers in schools and colleges, for whom four opportunities exist to develop knowledge and expertise.

The postgraduate diploma course lasts two years and the MA course three. They are linked by a

common year, thereby enabling suitably qualified candidates to transfer to the MA course after one year or gain remission of a year having been awarded the diploma.

Both courses offer the opportunity for critical examination of the theories and practices of art and design education.

The postgraduate diploma course is oriented towards educational practice; the MA seeks ultimately to engage its students in theorizing and academic research. Diplomates will also gain research expertise by devising, undertaking and reporting a project located within their current professional situation.

The need for the creation of a substantial body of research findings central to the problems of art and design education, and for the further accumulation of theorizing upon its nature, has been noted. The thesis of the 12 students who began the MA course last September will initiate Manchester Polytechnic's contribution to these areas.

Joint course links Leicester with Dutch universities

by Judith Judd

Leicester University is planning a joint course with Dutch universities in Amsterdam and Leiden.

The European Economic Community has given a grant of £1,700 for the development of a joint programme of study in the three universities. The course will examine organization in Western Europe from the sixteenth to the twentieth centuries, with special reference to Britain and the Netherlands.

Leicester's grant is one of 28 awarded to British universities and polytechnics for 1977-78 as part of a scheme for the development of joint programmes between institutions of higher education within the community.

The course, which will probably begin next year, is to be taught jointly at each university. Staff of the three institutions will take part in short exchange visits, and the grants will meet the expenses of joint planning meetings and the production of teaching material.

The course arose out of a series of lectures given in Holland by Professor H. J. Dons, Leicester's professor of urban history. It aims to encourage the more systematic study of the emergence of modern urban society where it first occurred in its most complete form: Britain and the Netherlands.

It also aims to analyse the impact of the city on the community, and to identify the bearing of historical factors on contemporary city life.

Cash boost for consumer affairs

by Maggie Richards

A short course on consumer affairs produced by the Open University is to receive a £12,000 grant from the Government.

The course, entitled "Consumer Decisions", will be launched in October by the Open University in conjunction with the Consumers' Association. It has been designed to advise on new consumer laws and regulations, and to show people how to make sensible choices when purchasing goods.

Government assistance for the course is intended to keep down the cost, and so attract as many participants as possible.

Welcoming the new course, Mr Roy Matherley, Prices and Consumer Affairs Minister, said: "The Government can, and does, give important protection to the consumer through legislation and promotion advice services. But there is also a need to find ways of educating adult consumers."

He added: "This eminently practical course should be of real value to consumers, and I am glad to give it the financial support necessary to bring it within the means of a wide range of potential students."

As with other Open University courses, materials will be despatched by post and supported by television and radio programmes.

An Open University spokesman said: "It is intended that the course will be firmly based on the realities of modern living. Despite all the interest in 'consumerism', there has never been a short course available to people in their own homes to guide them through the maze of legislation and information."

"The accent in this course will be on taking positive decisions so that the need for rights and redress emerges as a backdrop."

Double degree chance for new 'giants of industry'

Strathclyde University is to start a

double degree course in train future

Last May the university was chosen by the University Grants Committee as one of five British universities to lead new initiatives in engineering education in line with the Government's drive to attract able students into careers in engineering in manufacturing industry.

The new course is a double degree of BSc BEng with honours in manufacturing sciences and engineering. It will last five years.

It will begin in October this year and will run in addition to the university's four-year BSc honours courses in specialist branches of engineering.

The study of general engineering and manufacturing technology will be integrated with business studies.

There will be several periods of supervised industrial training totalling nearly two years and leading to recognition by the relevant chartered engineering institutions.

The course has been designed by a university working party under the chairmanship of Professor J. M. Harvey, the deputy principal of Strathclyde.

Professor Harvey, who is head of the department of mechanical engineering, said: "The course's objectives are closely related to the functions of engineering design: manufacturing management, including such aspects as creative design and the efficient use of both human and material resources; its approach is directed towards the solution of problems encountered by engineers in industry."

"We are enlisting the collaboration of leading industrial concerns in the development of the course and training of our students in particular by providing industrial training places and helping to devise relevant material for project work and by sponsoring its students and employees for a course."

"Liaison with industry will be one of the main functions of the course supervisor who will be senior academic responsible for the board of study for the course."

In the first year up to 20 students will be enrolled but the number is expected to attract people from industry as well as those from school.

Pulsar programme from OU

A special programme in commemoration of the tenth anniversary of the discovery of pulsars by a research team at Cambridge is to be screened by the Open University's BBC unit.

Professor Antony Hewish, professor of radio astronomy at Cambridge University, who led the research team and was later awarded a Nobel Prize for physics, has agreed to present the 50-minute programme, which will deal with the growth of knowledge about pulsars.

He was invited to take part in the programme by the Open Science Society of the Open University in collaboration with the Royal Astronomical Society.

The Open Science Society, an extra-curricular group of Open University students and staff, has the programme to be the first several in different areas of science and technology.

It is also the first of a new programme for the Open University BBC unit—aiming at an audience wider than Open University students.

Last year the first full set designed specifically for non-graduate students was broadcast, to accompany two Open University experience courses, "The 10 Years of Life" and "The School Child".

North American news
Strong student concern over energy issue

from our New York correspondent

Energy and the environment are the major national issues for American students, according to the twelfth annual Freshman Survey by the American Council on Education and the University of California, Los Angeles.

This year energy conservation replaced the environment as the principal issue: 81.9 per cent say the government should be doing more to encourage energy conservation. Almost as many (81.2 per cent) feel the government is not doing enough to control pollution.

Consumer protection is the third main issue: 71.2 per cent say there should be more protection from faulty goods and services.

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Cutbacks threaten 'sandwich' courses

from our New York correspondent

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1991, TIMES HIGHER EDUCATION SUPPLEMENT 3.278

Don's diary

Double-Dutch

The Netherlands is one of the most geographically inaccessible and ideologically hostile countries in the world. Canals of filthy, stinking, impenetrable liquids of tulips, marauding bands of "chiggers", menacing windmills, the skeletons of frozen peats revolve and rattle eternally on their beds as a grim warning, and a force of that sound: like a piece of Arab paraling.

There is a lot to be said for the West, and for the future, although nothing has ever been heard about its higher education. There was the embargo on a few years ago of the high poets or who tried to

After the first week, the two students who had elected to take his course changed their mind and he had been left with no one in track. But owing to the hours expended elsewhere he was clearly

Penetration

Left confirms election strength

ALIENS

The Marxist left has won the Greek student elections again this year, capturing more than four-fifths of the seats on 63 student union boards throughout the country. The poll in this 12 universities and graduate schools won nearly 50 per cent.

The biggest gains were scored by PASP, the student branch of the neo-Hellenic Socialist Movement (Pasek), which emerged in the last general election two months ago as the main opposition party to Parliament.

PASP won 144 seats, an increase of 35 over last year, beating all other Eurocommunist groups into third place. PASP, which came first in 1976 lost its lead and was relegated to third place in 1977 by the Communists, mainly because of internal dissension and a purge of extremists.

First place was again won by PSK, the Moscow-oriented communist group, which took 165 seats.

Norway

Most funds—almost a quarter—were allocated to the national research councils, but universities received 22 per cent, while other post-secondary education institutions got 7 per cent.

per cent), social affairs (19 per cent) and education (14 per cent).

Most funds—almost a quarter—were allocated to the national research councils, but universities received 22 per cent, while other post-secondary education institutions got 7 per cent.

An increasing proportion of funds is being channelled to the two newest universities—at Tromsø and Trondheim. Together, they accounted for 39 per cent of funds compared with 31 per cent for Oslo and other universities.

In order to penetrate this remote and largely unknown society I adopted the strategy of Gunter Gahruff and, armed with the assumed name of Pouch (imagine trying to get away with that in Britain!) and a grossly inflated "vitae", became one of the few outsiders to insinuate himself into a Dutch university. What follows is a (truthful) account of academic discourse of the State University of Eindhoven (SUC).

In 1978 the central government decreed a new structure for the universities and in order to break the hold of the monopolistic institutes and the autocratic professors, "subject-groups" were introduced. I was a member of the "comparative social, historical, economic, religious, political, and agricultural sociology" group.

Initially, the Sociology Institute had split into seven subject groups but then, following a number of conflicts, between teachers, mergers, heart attacks, and unfortunate accidents in the lift-shaft, they had coalesced into a single unit comprising one professor and 10 lecturers. There was one other staff member, an irascible American called Homburger, who had former 'subject group' on his own and this had been officially declared illegal under the 1970 Act. Thus the 'Sheepas', as we were

Discussion

My first meeting with the "Sherpas" was at the beginning of the academic year, at the cosy group meeting which was held daily between 11am and 3pm, with frequent interruptions for the submission of personal proposals for interim plans to discuss eventual teaching and research.

There were seven members present: the professor, his secretary, four lecturers (and myself). Sixteen lecturers had sent messages sincerely regretting that they would be unable to attend. I had already read out a catalogue of sure throats, punctures, water-skiing accidents, conferences in Tokyo and Hollywood, nervous breakdowns, impending marriages, the death of an in-laws' family bereavement, sick children, and debilitating headaches. The others could not be traced any longer. The Sherpas also wished to be kept informed.

With 17 students now registered for all courses, teaching loads could be brought down to a tolerable level allowing more time for research. I selected a student who had flunked in the courses of Hantburgner were merely temporarily illuded by his superficial showmanship and besides which they were convinced that the subject-group was really illegitimate, they would return to the field.

We then turned to research and I asked for a book on Latin America. Pons had just returned from six years' study leave in Latin America where they had worked on "human druppings and the CIA: agricultural development in the highland regions of Peru". They reported that it was hoped to proceed jointly with the analysis and writing-up of the data and they envisaged a joint "promotion in 1986."

Currently they were working on an article for *The Scarborough Municipal Government Review* and the two authors had been severely handicapped by the burden of jointly teaching one hour a week. They had however written a joint book review in 1971 which they felt ought not to be overlooked.

They had been invited to preside at 60,000 guilders for attending international conferences was reaffirmed by unanimous approval. Indeed they were awarded the Marx and Spengler Memorial Prize "for having the highest number of international conferences attended in a decade."

Parsons decided that in order to reach what, at an advanced stage, he felt was the best audience, he would publish the book through a publisher. Apart from an inventory of the group's publications, which he hoped to publish, he had 11 female research assistants collecting data, continuing to hand-draw additional among women in Princeton and New York City and Philadelphia. They had now met three and a half times of varying size and were preparing to hand the material over to an outside agency for coding and computer work he envisaged publishing in 1991 and hoped that his recurring claim that the book would fit the research budget would not be considered excessive. He was indeed unanimous. Published was rather.

In 1973 the "Sherpas" had published four articles and two book reviews. By his calculation, this represented a hundred per cent increase in productivity on the previous year and everyone was to be congratulated. Humberger's output of 12 articles and nine reviews was simply dismissed as "publicity seeking" and as indubitable evidence that he neglected his teaching.

Promotion

Several weeks later, I attended a promotion where Pammekek, the "promotor" for Jella van de Lau, Pammekek was hoping to get Van de Lau, one of his most-subscribing readers, in a chair. But van de Lau had never written anything longer than three pages and at 54 he seemed destined never to reach the pinnacle. Pammekek encouraged him however to publish his collected book reviews as a dog-eared. Illness was "the social significance a yawning, from Plain to Nati" used to disarm the left, he added the subtitle "a critical Marxist analysis."

The great day arrived and with pomp and ceremony the academicians gathered for the public defence of the doctorate. Van de Lan had hired a hard rock group and a trio of black nipples go-go dancers who hobbled disconcertingly in the background. The gownned dignitaries severely cross-examined Van de Lan (with questions already planted by Pannekoek). They then retired to consider their verdict which was considered a formality.

But their sherry glasses were scarcely empty when Hamburger burst in. Pannekoek, the roared, "Schmuck! Schmuck! Schmuck! Schmuck! Forty-seven pages of bullshit. Anyone can get a doctorate who hawks in filthy men's underwear. I'll give you all a piece of my mind. Now, I know how you got promoted!"

Pannekoek blanchéed visibly then retorted, "I'm not listening to anyone more of your vile insinuations about my relationship with the late Prof. Wildenbeest!"

Hamburger agreed that this thesis is a six-plus—aren't we gentlemen?" Hamburger roared a six plus! What? I mean this is a six plus! What? Professor Wildenbeest looked at him condescendingly, pulled out the thesis from a bundle of brochures and said, "This is a six plus. The thesis plays in developing countries," he said "emphatically a six plus!"

Coming from America makes it difficult for you to appreciate this kind of doctorate. The standard is standard than in your degree class.

torles and re
tion of a m

Van de Loo is separated from his wife and suffers from rheumatism and dandruff. So he deserves our support".

Hinulburger was the only dissenting voice. Professors Kip, Kuekoel, Vlonk, Winkol, Pukken, Sprouk and Eek were unanimous. Van de Loo promoted to the sound of the group playing "I did it my way".

Escape

I was just beginning to gather some promising material on SU for the outside world when unfortunately my carer was blown and I narrowly escaped being rolled up in red plastic as part of the terrifying "Edum treatment". This fragment, then, can merely afford a glimpse of the true state of health of higher education in The Never-Neverlands.

Maurice Pons

The author is reader in sociology at the Netherlands School of Business in Nijmegen. Although those who are inevitably real names have been changed to protect the embryo.

Universities ambivalent on Carter plan



Steven Muller

President Carter is about to announce his intention to establish a separate cabinet Department of Education in his Administration. To move education out of the present Department of Health, Education and Welfare (HEW) and

establish a separate department requires legislation by the United States Congress and will take quite a while. The matter already has been discussed—largely behind closed doors—between Mr. Carver's staff and the Education Department a year in office, and full public debate will now ensue.

During his presidential campaign Mr. Carver made the promise of a separate Department of Education to the National Education Association (NEA). It repeated its promise after being elected, and it was known that his Secretary of HEW, Mr. Califano, opposed the NEA's demand. Mr. Califano was free to express his opposition while the subject was under consideration within the Administration, but on condition that he would accept a presidential decision to re-

During the past several months of deliberation within the Administration, many have been consulted, with university representatives, who have proved to be—and still are—unwaveringly on the issue. The reasons for the ambivalence of the universities make a quite useful outline of some of the major problems that have been resolved in the process of establishing the new Department of Education.

whose expenditures are much more
hugely devoted to welfare and
health than to education. Access
to education to the President and
Cabinet has been only indirect
through the Secretary of HEW, who
may seldom be able to give educa-
tion top priority.

Within HEW, administration
education appears to be peculiarly
uncoordinatedly divided. At
invariable risk of caricature
in order to keep things simple and
comprehensible, one sees an As-
stant Secretary for Education
(Berry) who has great potential
possibility but little actual influence
and status, and a Minister of
Education (Dr. Boyer) who
coordinates and staff in command
HEW's large Office of Education
whose responsibility is limited.

A separate Department of Education, therefore, would achieve more improved visibility and—it is hoped—outlasted influence as well as accuracy. It would have direct access to the President and the Cabinet, would not be burdened with competing concerns for health or welfare, and would have clear and prominent responsibility as authority with respect to the federal government's educational policies. The Congress would also be likely to relate more cooperatively and vigorously to a separate new department. True—in brief is the heart of the case for the creation of a Department of Education, and is why the National Education Association has nursed this aim for some years.

The NEA, however, primarily represents elementary and secondary education, and the first

several fears at the university level. Is that elementary and secondary education could unduly dominate the new department, at the expense of higher education? More dollars are spent in elementary and secondary than on postsecondary education, so the fear is not groundless. In this context the universities are worried about NEA's fervent advocacy, and even more about President Carter's promises directly and exclusively to the K-12.

Such university concern is aggravated by the fact that the proposed Department of Education is apparently intended to be substantially decoupled from the federal government's extensive role in research. The only area of vital interest to the major research universities and great rise to fear, not only that higher education may be relegated to a separate department but that a complex new system may be imposed between the twin teaching and research activities of the major universities.

Fear of overcentralization in education itself is yet another aspect of the ambivalence of the universities. Major private independent institutions, such as Harvard, Yale, Princeton, Stanford, Hopkins, Chicago or Duke, are not distressed about excessive federal regulation, and major public institutions, such as Michigan, California, North Carolina, Ohio State or Texas, not only share this distress but worry about federal interference in their close relationships to the state governments that primarily provide their funding.

Yet another worry is that the very visibility of a separate budget for a Department of Education might work against increased federal contributions in the form of longer funding for education—no longer mixed in with larger outlays for health and welfare—could constitute a target vulnerable to budget cuts and, should that happen, higher education budgets would be lucked by less political clout than other federal programs, such as agriculture. With all this in mind, the major American universities see President Carter's commitment to a Department of Education as a dilemma: risky to oppose legislation that should result in disadvantage during the present financial crisis, but risky to support because it might serve less well than what now exists.

Apart from these particular concerns of the universities, there also is bound to be thoughtful public discussion of whether a separate department of health and welfare would move toward better government. What will happen to HEW as a consequence? If a Department of Health and Welfare remains, it will still be of such giant size as to be unwieldy. Will it be able to raise the education level sooner or later, without splitting off health into a separate department as well? If welfare then becomes a remainder separate department, might it not have become wiser to split off the welfare first and then the health, leaving health and education together?

At present there is virtually no coordination of policy among the many agencies that relate extensively to higher education—such as the Office of Education in HEW, the National Institutes of Health, which are also in HEW; the National Endowments for the Humanities and for the Arts, which are two independent agencies; the National Science Foundation, another independent agency; and, of course, the State Department itself. Will a separate Department of Education perpetuate this lack of coordination, make it worse, or, at least, improve it? Is there any other way to achieve the necessary coordination?

President Cartor's proposed Department will include more than merely the present Office of Education in HEW, which indeed alone would make one small mid-northern State. The Department will will the President's proposal will immediately emerge from the Congress. Large programmes of assistance to students are presently lodged within the Veterans' Administration, the Federal Bureau of Investigation, the Administration, and both operate quite separately from the Office of Education. The Department of Defence interacts with education in many ways which are so little known that the revelation of them comes as a surprise to most people. Will it be possible to restructure these and many other scattered operations into a consolidated whole? The coming public attention to educational matters suggests these matters should be investigated.

The author is president of The Johns Hopkins University.

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Like the Windmill theatre, we never closed

The cover of the 1977-78 edition of the Polytechnic of North London's student union handbook sports a rather gruesome drawing of a fully clothed skeleton with a mushroom-shaped hydrogen bomb explosion cloud emerging from the shattered remains of its skull.

A few years ago this might have seemed an appropriate epitaph for an institution which at least in the popular mind appeared to be hell-bent on a path of wilful self-destruction.

As was widely reported in the national press at the time between 1971-74 meetings of the council of governments were disrupted on less than six times, five ending in pandemonium, there were several similar occupations and seemingly endless disruptions.

In 1975 three members of staff claimed in their book, *Rape of Reason*, that PNL had become the target of left-wing extremists among both staff and students and subsequently Dr Rhodes Boyson, MP, called for the polytechnic to be closed "for cleansing".

Whether this image of constant confrontation ever truly reflected what life was like for the majority of students and staff in the institution seems, at the very least, doubtful.

As Mr Terence Miller, its director, points out PNL like the Windmill Theatre never closed; its academic structure was improved and a string of new degree courses won CNA approval.

Navrthless to the extent that there were troubles—in 1975 for the sound and the fury of internal warfare rather than for the excellence of its academic achievements that the public knew PNL.

Today the image and the reality have changed. Although last year saw the biggest and longest student occupation in the polytechnic's history, the North Eastern Polytechnic has now inherited the dubious distinction of having the most militant students in the country.

True, there continue to be intermittent runnings. The director is as outspoken and idiosyncratic as ever—in October he called in the examination papers of all the polytechnic's final year sociology students to examine them for Marxist bias—and the student union is still publicly committed to its "tradition of militancy"—it certainly drew attention to the fact that Mr Miller was occupying the caretaker's flat at a newly opened hall of residence and it continues to campaign on behalf of Mr Wycliffe Jenkins, a former head of the business studies department who lost his post in September, 1976.

However conditions have changed. Although the potential for occasional eruptions remains as in any other institution of higher education, PNL differs in its attitude with others worldwide to appear to have quietened down. And, more importantly perhaps, a new, open and more thoroughly democratic academic structure has been introduced offering a channel for the direct expression of grievances and for influencing the development of the institution.

Many other physical and educational inadequacies highlighted after a CNA visit in 1973—failure to fully integrate the original constituent parts that formed the new institution, the unwieldy nature of the academic board, the absence of computer and library facilities—which may have exacerbated the polytechnic's problems in the early years have also been eradicated.

Today PNL, on the eve of another CNA quinquennial visit, is confident that it has matured sufficiently to meet guests head high.

"We are taking it as an absolutely routine operation. We are approaching it as two equal partners engaged in a discussion across the table to our mutual advantage. We feel that the thing is running extremely well. We feel 100 per cent confident about our performance," says the director.

"If you consider that we have only been in business for six years and we have had a pretty chequered experience over these years I think it's a really good shape."

The Polytechnic of North London was created in May 1971—the offspring of a marriage between two



Director Terence Miller behind the desk where he has weathered many a storm. He is an stranger to controversy. From 1967 to 1969 he was principal of University College, Rhineland.

North Western Polytechnic and the Northern Polytechnic, which had originally evolved to serve the educational needs of the people of North London.

In one sense the merger appeared to be one of the most ideal of all the polytechnic unions. The Northern Polytechnic was primarily a science and technological based institution whereas North-Western was essentially an arts orientated campus. There was very little overlap of courses and on paper at least the conjunction appeared to be an ideal meeting of the two cultures.

There were however, as staff of both institutions were soon to discover, significant differences. The Northern Polytechnic, founded in 1892, was essentially small and compact. Centred on one campus it had a long tradition of research work, offered internal London University degrees and enjoyed an autocratic style of management where the "principal was principal" and the democratic tradition was virtually unheard of.

On the other hand, North-Western was a much younger institution. Although the scheme for its formation was approved in 1892 it took nearly 30 years to implement and the doors did not formally open until 1928.

Over the years it evolved into a sprawling multi-site and building institution offering external London University degrees and lacking a tradition of research. Its major period of growth came after 1964, when it trebled in size, and its style of management after 1968 became increasingly consultative and democratic with decisions being made in committee.

"We should have been able to make very rapid progress. Maybe one of the problems was that we were too equal," commented Dr Norbert Singer, deputy director. "Each of the institutions felt that it had its own qualities and that there was no reason to give way to the character of the other."

Mr Jim Comer, assistant secretary, said: "In the early years after amalgamation there were a lot of differences of approach between the two former institutions. People viewed the nature of the institution from different standpoints. They had different views as to policies which should be followed and had been brought up with different attitudes as to what was the best way of getting those policies achieved. The first two years were in fact a period of transition in which we were going to be a success story."

Even now the polytechnic is still resolving the legacy of the merger. Although the new academic structure, which involves a three-tiered edifice to faculty boards which turn report to the academic board, appear to be working well—there are still some problems awaiting resolution. For example, Dr Singer says that the departments do not fit very happily into the committee structure and ways of improving the

situation are still being discussed. Despite these difficulties PNL has managed to reach quite a mature stage of governmental development in a relatively short period of time. It is proud of the openness of its procedures, of the numbers of individuals involved in the boards and committees responsible for evolving the range and distribution of information—for example, heard and committee papers—freely available to all.

Today the polytechnic operates from six sites in the heart of what the director describes as "the jungle of North London" in the boroughs of Camden and Islington. Altogether there are some 4,100 full-time and sandwich course students, nearly one-quarter of whom are overseas students from 119 different countries, and around 3,000 part-time day evening and short course students.

To run the courses there are more than 500 teaching staff and 600 support staff divided between 20 academic departments and the central administration. In the 1976-77 academic year the five faculties had the following distribution of full time and sandwich course students: economic and administrative studies, 750; environment, 370; humanities, 934; science and technology, 1,050; and social studies, 900.

By comparison with many other polytechnics PNL has fewer part-time students and less sub-degree work. About a third of the full-time staff teaching hours are devoted to sub-degree work.

Around 55 per cent of the full time and sandwich course students come from London and the remainder come from throughout the United Kingdom. Most of them live in the London area, although some commute quite considerable distances.

Student recruitment is strong in the humanities, social studies and the environment faculties. In common with many other institutions of higher education it experiences the greatest recruitment problems in science and technology.

The director points out that 60 per cent of the institution's output is at first degree or post graduate level which is higher than many of the smaller British universities.

The polytechnic, he says, is not in any sense typical. It lacks any big departments of heavy engineering—electronic and communications engineering directly in the field of technology and food sciences—these can be placed in the conventional field of technology.

On the other hand it is very strong in the pure sciences, for example, physics, chemistry and mathematics and in the humanities, for example, English, modern languages and philosophy. To this it adds a traditional university style of research in many other polytechnics.

"We are not in any sense of the technical college or strict polytechnic tradition," he says. "We are really surprisingly like many Commonwealth universities who have just the same kind of people and distribution of effort. If you go to London you find that they have the spread of subjects we have got."

Over 80 per cent of the polytechnic's students, he believes, can be engaged in vocational courses of one kind or another. This, he points out, is similar to the output of most universities. Mr Miller dismisses the idea that most university students are engaged in learning for its own sake as "unwise".

Contrary to public opinion, he says, the polytechnic is an extremely open and democratic society. The idea of "an apartheid, fascist like Miller" wielding absolute power is quite wrong.

"We have the highest elected component on the academic board of any other similar institution in the country and we still have more students on our academic board than any other comparable institution in the country. Eleven out of the 50 representatives or more than 21 per cent are students."

As far as future development is concerned he points out that there is no prospect of any major new building programme or of the polytechnic achieving any significant degree of physical concentration within the next 10 years.

ILEA is steadfastly maintaining a "no growth" or even a "university" policy for PNL and for its other four polytechnics. The most that could be expected, he says, is a piece by piece diminution of the number of sites occupied.

"I do not think we are going to expand much beyond our present numbers. We have got to improve our productivity. We have got to do the job better and I am engaged in welding the whole institution to do this."

It is hoped to increase the number of FTEs from about 4,500 to 5,500 by 1981, which would represent a growth of something like 17 per cent. Full-time and sandwich student numbers would increase by about 10 per cent at 500 in the same period.

The whole student staff ratio for the polytechnic is between 8.6 and 8.7:1. But the ILEA has recently tentatively suggested that the polytechnic should lose 22 posts in a staff reshuffle in order to achieve a more equitable ratio in all five of the inner London polytechnics.

Mr Miller says the polytechnic's main strengths lie in the "perfectly conventional, classical and pure intellectual performance" of some of the larger departments such as history, English and languages. He is not so happy about the commercial/economic field. Although he does not expect to be able to compete with the City of London Polytechnic, which is particularly strong in this area situated

as it is in the centre of the financial world, Mr Miller says efforts are being made in "pure heart" into this area of the polytechnic's work.

On the supposedly distinctive polytechnics should play in higher education, Mr Miller has a characteristically outspoken view. "People go on at great length about the universities. It is not in higher education there only one pattern that you can have and that is the university pattern. I think the British have got into a corner on this with a rubbishy binary system."

The attempt to "get something on the cheap and still it up" is "distinct" in his view. "I think it will happen to all the polytechnics that they will become universities. If we were left on our own, it is only we would make ourselves as they (the universities) do."

"We want to be our own masters, but we would do too as we as they (the universities) do. On the other hand one is not so free for total independence. The community needs to have more place in higher education at the moment. It is chaotic at the moment even in the university sector."

"One has the impression of a system being run by a group of identified members, bankers, candlestickmakers," he said, "highly bureaucratic and very much not highly intelligent."

He would like to see more centralised long term planning of a nation's future higher education needs in particular for Mr Miller is also equally adamant that there needs to be a top-down approach to staff appointments.

"We make bad judgments of people too often and we get a bored with people often in important positions who are no good. This applies not just to polytechnics but to universities and schools."

"What I think we do need to think seriously about therefore is appoint people to limited courses. Heads of departments and professors should not be there for life."

"I think there has to be a shake out in the system... I think that seven years in any job is quite enough."

Having been director of the polytechnic for six years, Mr Miller aged 60, says he would not be doing another job now. "If anyone likes to make me a banker or a professor, I am open to it."

Ms Koro Worley is president of the students union and a member of the National Organisation of Internationalist Societies. She says that militancy has not disappeared from the campus, merely that students have perhaps grown up a little—concerning more on less personal, rational issues like fees and overseas student quotas rather than as in the past on internal issues like student representation or the behaviour of the director.

She complains that at PNL there are minimal facilities for "pleasure time activities", there is no student union complex, the accommodation problem is acute and that the price rises are a cause of concern. Recently the 11 person student executive has moved slightly to the right in its political terms. It now includes two members of the Broad Left, four NOISS representatives and one independent socialist. Ms Worley describes as apolitical.

Commenting on the fact that there are many unfilled academic places in the revamped academic structure, she says this is partly because students feel that the polytechnic is not taken seriously and partly because the level of the polytechnic is still too low to attract the exercise of any real political power. The reorganisation of the academic board from one third to one fifth.

Mr Roy Hall, PNL's academic registrar, points out that if students choose to take a first part in the polytechnic, they can do so. There would be up to 200 of them participating in the system. He says that the new set-up is designed to "serve the needs of what people are deciding and

North London

to make them decide what will fit the structure."

Power is now more devolved. There is only a limited amount of overriding policy at PNL. It is not easy to say that something is the director's fault because the decisions are made by representative committees of the community.

Some heads of department complain because they cannot bypass the system by approaching the director and getting him to make an off the cuff decision on some issue or other.

Miss Harriet Greenaway, assistant academic registrar, says that the fact that policy and procedural agreements are made freely available in public scrutiny reduces individual anxieties.

Miss Greenaway, who is also vice-chairman of the Society for Research into Higher Education, has recently been involved in a nationwide survey of staff development activities in polytechnics and universities.

She says that PNL is very advanced in its approach to staff development compared with other British institutions of higher education. One of the most unusual facets of the staff development policy is that it seems equal treatment in non-academic staff and academic staff.

As far as library facilities are concerned PNL's six libraries inevitably mean a certain amount of staff and stock duplication. Like other institutions of higher education it suffers from problems of theft (in some subject areas up to 38 per cent of recent acquisitions have been stolen) and book mutilation (for some reason law is particularly vulnerable).

With book prices inflating at between 25 and 30 per cent as compared with an ILEA block grant which only allows for an inflationary element of around 12-14 per cent, Mr Simon Francis, chief librarian, is justifiably concerned about the effect on total acquisitions.

PNL also boasts one of the top four or five schools of librarianship in the country with a considerable reputation for research work. Mr Edward Dudley, its head, says that one of the areas the school will be looking at in the future is the need for some kind of training for library assistants.

The medical architecture research unit of the department of environmental design is world-famous for its work in the field of health facility planning. It also offers a graduate diploma which is the only one of its kind anywhere.

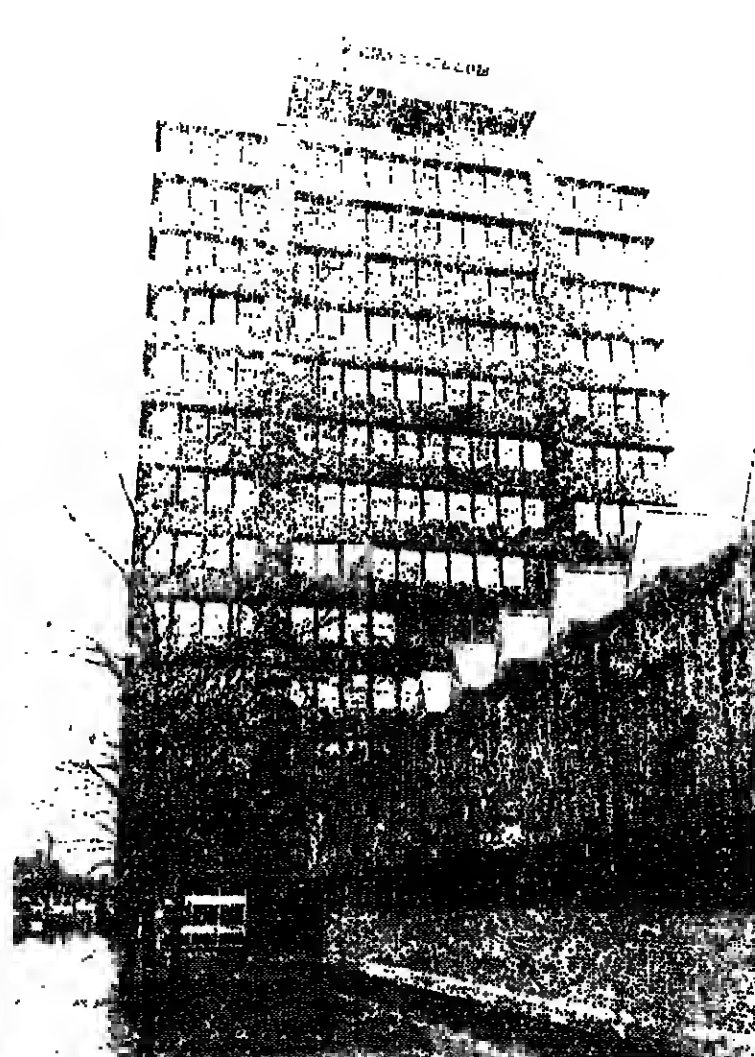
Other exciting work in the department includes the design of lightweight roof structures which are responsive to natural processes and a study of housing with particular reference to energy use. This academic year, Mr Wilson Briscoe, head of the School of Architecture and Interior Design, says it is hoped to start a comprehensive study of the built environment.

In the other department that makes up the faculty of the environment, geography, there are plans to start a postgraduate course in leisure planning. Last year the department started a MSc Quarterly Studies with City of London Polytechnic, which Mr David Bryant, a principal lecturer in the department, believes to be the first postgraduate geography course approved by the CNAA anywhere.

On the arts side the faculty of humanities is currently resubmitting a revamped BA Honours degree in the humanities to the CNAA for its approval. It is hoped to extend the number of subject options from the present seven, to ten. The new degree will include French, German, history, philosophy and Spanish, to name a few. It will also include modules in psychology and linguistics.

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The polytechnic building rises into the north London sky, a symbol of its own survival.

offers the only single honours full-time philosophy degree available in any polytechnic in the country.

Currently he is hoping to tighten up the single honours degree course in history—by introducing a compulsory foreign language requirement for reading purposes and by introducing compulsory statistics.

"I believe in hard history, not soft history," he explains. "It means a fairly tough minded approach to the discipline. I regard it as a discipline and not something that consists of little bits of everything."

Mr Kenneth MacKinnon, who is a senior lecturer in the classics and linguistics division of the department of languages and literature, is tutor for the classical civilisation course which is a component of the joint honours humanities degree intended to introduce students to all aspects of the civilisation of Greece and Rome.

Since literature is studied in translation only, he believes the students have a chance to read much widely than is normally possible on a classics course.

On the science side a re-submitted BSc modular degree scheme, which enables students to take single subject and combined science degrees, is being considered by the CNAA.

The polytechnic found from experience that students doing the combined honours degree tended to concentrate in part two on two subjects. What they would like to be able to do is to name the specific subjects in the degree title while retaining the flexibility of the combined title for those students who opt for a broader range of study.

The department of electronic and communications engineering is planning to make its BSc in the subject into an honours degree and is also considering the possibility of introducing it into the modular science degree scheme. However there is some opposition to this from the professional institutions.

The National College of Rubber Technology, which Dr Joseph Glavin, its head, describes as "probably the best equipped" college of its kind in the world, was incorporated into the former Northern Polytechnic in 1969.

It is currently planning a higher TEC certificate and a higher TEC diploma to give students an alternative route for entry to a course leading to graduation of the plastics and rubber institute.

For the future PNL is planning an ambitious part-time evening

degree scheme to serve the needs of the local communities of North London.

This has evolved in an attempt to ensure that the institution continues to develop in a period of financial and physical constraint and in response to a significant absence of local provision.

"Our view is that the polytechnic must become more of an institution serving the particular needs of North London and providing education for those who cannot get it elsewhere," says Mr David Croome, assistant director resources.

"When we look at the educational provision in North London generally there are very few opportunities to do degrees other than by three years full time study."

The plan is to offer all the polytechnic's degree work in humanities, the social sciences and economic and business studies on a part time basis in the evening.

Students will be able to do single subject honours degrees or combined honours degrees involving a choice of subjects from among 23 separate areas ranging from art to psychology.

It is hoped that the scheme will attract around 1,200 students over the next five years.

Entry qualifications will be the same as for any other degree course but special efforts will be made to admit students without the formal requirements if they can show evidence of ability to cope with degree level work.

"We are really hoping to be able to catch ourselves in the part time and continuing education needs of the area around us," commented Dr Singer.

It is hoped that the CNAA will approve the scheme in the spring and that courses will start in September.

The polytechnic sees this as a logical next step in its developing trend towards looking outwards at local community needs.

Having originally evolved to serve local needs and never been far from the local community, PNL is now returning, out of necessity and inclination, to its roots and its national and international role.

As Mr Croome says, the new evening degree scheme is an "act of faith" by PNL in its own future.

Simon Midgley

Report calls for review of religious training

An immediate review of the national provision and geographical distribution of places for initial teacher training in religious education is being called for by the Religious Education Council in the wake of the numerous college of education closures.

A special report on the future development of religious education prepared by the council makes a case for the review so that higher education institutions with continuing religious studies departments can ensure the future of their courses and professional programmes.

The recommendation, which has been sent to the Department of Education and Science, the universities, the Council for National Academic Awards and all bodies validating degree and certificate of education courses as well as the Advisory Council for the Supply and Training of Teachers, is put alongside a second proposal that sufficient time—not less than 10 hours of staff-simulated contact—should be allotted to the professional training in religious and moral education of all teacher training students intending to work in primary schools.

On the subject of in-service training the two bodies have also issued a second set of recommendations. They call for comparison between schools and teacher training colleges, the provision of specialist programmes in need of the need of new teachers, the provision of full-time and part-time "transfer" courses in secondary school religious education for teachers already qualified in other subjects.

The report goes on to point out that as religious education is the only statutory school subject, with the consequent responsibility of the Department of Education and Science for its provision, there should be a national religious education advisory group.

It maintains that the number of students who embarked on courses in September, 1977, should be a specialist qualification in religious education was 35 per cent less than the number completing similar courses last June. Ironically there was a 13 per cent increase in the number of students embarking on subsidiary courses last September.

But the report warns: "The estimated total decrease—26 per cent for all students who have taken religious studies courses—cannot but give cause for disquiet since the estimates are likely to be very conservative."

It goes on: "The cuts required in teacher education numbers in some colleges are inevitably likely to affect small departments to a disproportionate extent. Thus a still larger decrease in the number of students taking religious studies is likely."

Serious concern is expressed in the report about the new geographical distribution of religious studies in the country. The report says that minimum staffing levels must be determined in order that national and regional provision in the subject is maintained.

Religious studies courses in institutions collected by the Council for National Academic Awards were struggling to achieve viable numbers and were offered in only about a third of the institutions offered CNAA education courses.

The report says: "It seems that in the first year students on CNAA BEd courses in 1976-77 fewer than 8 per cent studied religious studies (10 per cent being the minimum viable), and some of these were not studying the subject as their first choice," the report maintains. However, where religious studies staff had broadened their approach and pursued diversification with energy, there was sound potential for the subject to attract a genuine capacity to recruit viable numbers.

Both the Religious Education Council and the Christian Education Movement earmark in service education as the key to improve the whole area of teacher training in religious education. The report states: "The complexities of re-organisation with which colleges religious studies staff are coping has left limited energy and resources for the development of in-service education in the subject."

Nevertheless, the report warns, the overwhelming consensus of opinion was that in-service education, above all other forms of training, was the most significant need for the future development of religious education and the best means of improving the quality of teaching in the subject.

There is little evidence of initial teacher education in the subject having a coherent relationship with subsequent in-service education. Adequate in-service could only be made where the subject had strong provision in initial training. Finally they maintain that a national impetus to improve religious education within the realms of teacher training is now needed.

Such an impetus would need the support and involvement of Her Majesty's Inspectorate who would need to be brought together with representatives of local education authorities, colleges and teachers. Such a group would have the necessary professional status for its guidelines to carry weight in local situations.

Sue Reid

A boom time for the 'tele dons'

Mike Duckenfield meets Richard Rose, professor and pundit

In his latest book, Richard Rose makes the point that Britain, now often called a 'country in flux', is unbalanced by the problems of the government. For a political scientist, the change must seem apparent.

Since 1966, when Rose became Professor of Politics at Strathclyde, membership of the Political Studies Association has almost tripled, to over 700, and politics funding by the Social Science Research Council has risen to nearly £10,000 a year. There has also been a boom in television current affairs coverage and, apart from being a member of ITN's election night panel since 1970, Rose appears frequently on Ulster, Scottish and Irish television.

But what makes him unusual among 'tele dons' is that he was trained as a journalist, leaving his home town newspaper *St Louis Post-Dispatch* when he was 24 to go to Oxford. He still types 70 words a minute, takes shorthand five words a minute and holds a current American Newspaper Guild (Union) card.

Earlier he had taken a BA (double distinction) in comparative literature at John Hopkins in two years, where he was taught by the novelist John Barth, and spent a year at the London School of Economics as a student of number election broadcaster, Robert McKenzie. He likens his experience of London (when only 20) to the education of Sam Weller ('who ran on the streets from a very early age') and Huey P. Finn ('who'd been to civilization and ran away').

After Oxford, where he took a DPhil in social studies and co-authored the 1959 Miffield election study with David Butler, he took a job as lecturer in government at Manchester University under Professor W. A. Mackenzie. Five years and two books later, aged 33, he was a professor himself at Strathclyde.

Because of the Scottish tradition of four-year honours degrees, Rose's 25 'freshers' choose politics as one of their five basic classes, though only one in eight adopts the subject for joint or single honours. In addition, there are usually a dozen or more MSc and PhD students.

The department's fourteen teachers include specialists on political thought, communications, Marx, Marxism, and government institutions, but behavioural studies dominate. Rose's view is that politics is 'the most scientific of the arts, if the most useful of the social sciences'.

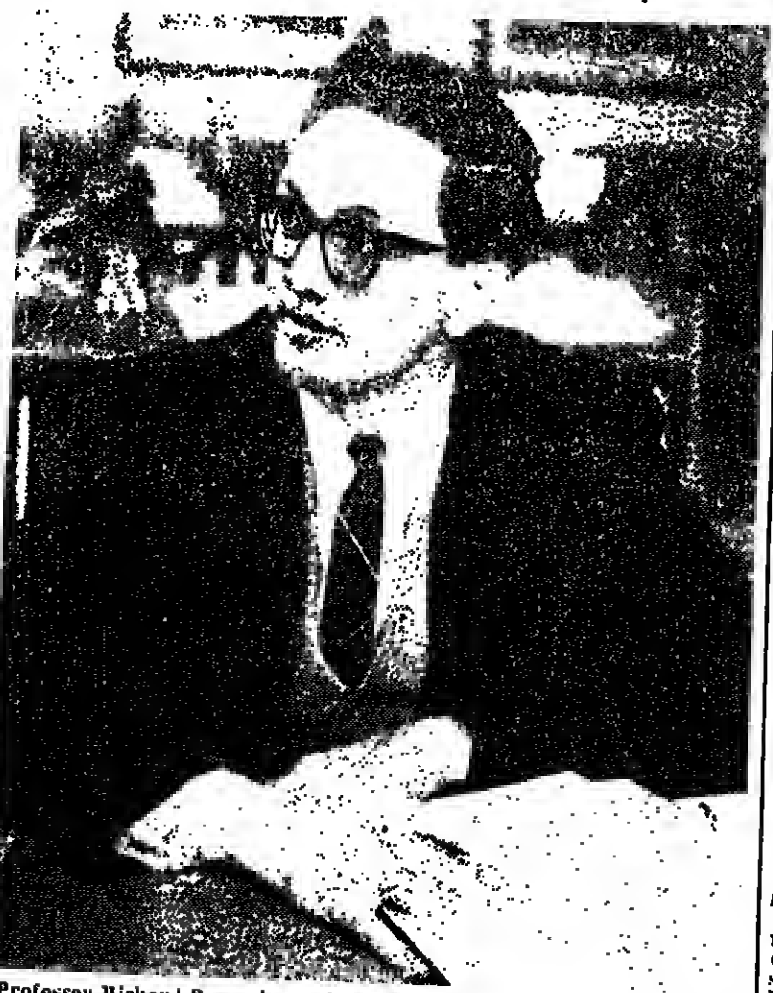
Post graduates have to study survey research methods and the use of computers, but many undergraduates opt to do so too. Apart from access to two computers, the department has a data library including a complete set of British constituency election results since 1918 and a unique collection of results in 23 Western countries since the last century.

There is also a social statistics laboratory with hard and soft ware for data analysis, and the department is a part of the Strathclyde area survey. This has carried out numerous studies for academic and public sector agencies in the West of Scotland during the past six years as well as giving students the opportunity to do a fully professional survey through all its stages.

But Rose is guarded about the use of polls. 'Those leading to a general election are merely a sort of brain of entertainment', he says. 'On the night you'll know the result, so why should I want to know the week before?'

But polls can be useful. When 1959 I realized that the people we were about to interview didn't know any more about the British electorate than I did. But my were politicians, they were supposed to know what was going on. I was merely writing about it. Polls on issues can tell Westminster what the people think.

His own students, however, generally come from the arts and have little idea beyond polls how diverse empirical research skills can be. Let alone how they can be used for policy analysis—the subject of Rose's final year honours and MSc classes.



Professor Richard Rose who works a 70 hour week as an academic and a broadcaster.

'There are many accurate skills. Students are not told this is jazz, listen to it', but rather here the Armstrong in 27, here is early 30s Armstrong, here is Spenser. And after they feel they know jazz, you give them Dixie Gillespie and Charlie Parker. I'm Gillespie and early Parker.'

Since January last year, Rose has also been director of the university's new centre for the study of public policy. The first policy-oriented research institute within a British politics department, the centre reflects Rose's growing interest in applying social science concepts and ideas to actual governmental problems and offers an opportunity for departmental expansion in a period of anticipated zero growth.

The first two main projects are a 45-month study of the political structure of the United Kingdom, financed by a £32,000 SSRC grant, and a multinational investigation of the political and economic problems of 'overdeveloped' governments, funded by a DM141,300 (£35,000) grant from the Volkswagen Foundation.

Rose spends six hours a week teaching and the department is small enough to minimize administration ('my thing is to find out what isn't being done to fit in the gaps'). Nevertheless, his is a full week.

'The days I'm in university, I catch the 8.28 from Helensburgh, read on the train and get in at 9.00. I leave about six, have tea and pack my bag, which takes about two hours. Otherwise, I start a little later and work from 10 am till midnight with two hours off. I try not to do any concentrated work on Sundays. It's about a 70 hour week.'

Perhaps because he travels frequently, often to meetings, Rose rarely takes a holiday. Last September he spent two and a half weeks in the United States Labour Party annual in Brighton; in November he was in Paris and much of this month he will be in Australia.

He turns his travels to quick account. A fellowship at the Woodrow Wilson International Center in Washington four years ago led to *Managing Presidential Objectives*, published in 1976, and a similar fellowship at the Brookings Institution, also in 1976, is to be followed by the executive office of the White House, due out this year.

Rose is a compulsive writer. Since 1960 he has written or co-written 12 books, edited an equal number and written about 50 academic

Mixed feelings about the new approach to law

'English universities divide into two groups in their approach to law teaching. There are those which teach pure law and those which have mixed degrees. I cannot say which way is superior. The world is those of Colonel Gerald Harper who has experience of both. He lectured at London University before going to Sussex where he now has the chair of law.'

Law has been taught in English universities only since the end of the nineteenth century. Until then barristers and solicitors did their legal training after they had studied something else. Those who argue for the teaching of law in universities alongside other disciplines in a course, have tradition on their side.

Impetus for their thinking came from the Robbins expansion. The new universities felt the need to do things differently. At Sussex, for instance, law was launched as a subject in consultation with the 'controversial' students which formed part of all the degree courses. In the school of European studies, students now spend 65 per cent of their time on law. The remaining time is devoted to contextual studies which may include international relations or the foundation of European culture and a language.

At Warwick the law department has a trail of teaching law in its social context. The mixed degree as such was avoided. 'We felt if we had a mixed degree we would be saying there is something called law and something called sociology and economics', Professor Patrick McAuslan says by offering half courses, the university has managed to give its students a much wider range of options than is available in most law schools. It plans to offer a new degree in law, the new degree in law and politics, which will be replaced by teaching on a new degree in law and politics. The department aims to teach current legal issues.

He appears to have a journalist's eye for incidentally and subtly. He has also taken on 11 Armstrong, here is Spenser. And after they feel they know jazz, you give them Dixie Gillespie and Charlie Parker. I'm Gillespie and early Parker.'

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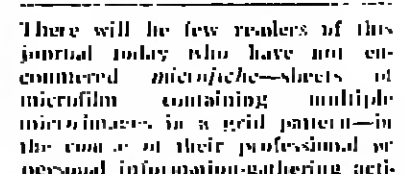
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Educational technology

Finding more colourful uses for microfiche

Alan Horder reports on a use of the microfilm medium still in its infancy in Britain



Colour microfiche, part of the Bosch microvision system in use in the Robert Bosch Ltd Training Department, Watford, Herts.

There will be few readers of this journal today who have not encountered microfiche—sheets of microfilm containing multiple microimages in a grid pattern—on the desks of their professional or personal information-gathering activities. I suspect, however, that the number of readers who have encountered colour microfiche will be quite small, the use of the medium in Britain being in its infancy.

Colour microfiche has been first introduced in the United States some 10 years ago. Their production mainly involves the use of special equipment which is outside the scope of the ordinary microfilm laboratory so that a number of companies set themselves up to specialize in this service. Unfortunately, the early stages of the volume of business was limited and not all of the laboratories offering the service survived. Those that did are now beginning to see recent developments in the medium in education and in training.

Colour microfiche have two main areas of application: as a publishing medium for coloured documents—in particular, material containing a high proportion of illustrations, and as a multi-media medium. One example of the use of colour microfiche as a publishing medium is the text-fiche programme of the University of Chicago Press, described by its sponsors as 'an exciting alternative to the high-priced illustrated book', and by Professor Robert Wood in a recent issue of the *New Scientist* as 'almost revolutionary'. Oxford Microfilm Publications are doing something similar in their 'Medicine Manuscripts in Microform' programme.

It is, however, the use of colour microfiche as an audio-visual medium which currently seems likely to make the greatest impact in the world of education. The Eastman Kodak Company—which has probably put more effort into the

development of colour microfiche than any other organization—has distinguished three different ways in which learning materials on colour microfiche are being used: the use of colour microfiche in the self-instructional mode; the self-instructional mode; the self-instructional mode.

In the self-instructional mode, the student may refer to a microfiche card at any time. The information could consist of an individualized collection of photographic subjects, as, for example, in the microfiche catalogue of the American Society of Haematology National Slide Bank. Or it could consist of reproductions of Canadian watercolours, drawings, and prints as in *Archives Canada Microfiche*.

In the visual-supplement mode, microfiche support traditional teaching methods by, for example, providing a student with a permanent reproduction of images which he has already seen on a screen in the course of a traditional lecture. These can be reviewed as he wishes up his notes as well as being used later for revision purposes.

In the self-instructional mode, colour microfiche are being used in learning programmes ranging from primary to continuing education and from the simplest to the most sophisticated. The microfiche may be used alone to carry the complete learning programme, or may be used in conjunction with audio tapes, work books and other material to provide the visual element in a multi-media package.

A study programme of continuing education developed as a cooperative effort between the American College of Physicians (ACP) and the University of Washington Health Sciences Learning Resources Centre, profiles an outstanding example of the use of colour microfiche in the self-instructional mode. This 'ACP Self-learning Series' has been described as being 'in a format combining the teaching strengths of written text, tape-recorded tutorial sessions and colour microfiche'.

Colour microfiche are also finding application in training. In the United States, Gambles of Minneapolis has produced several learning packages, each comprising a colour microfiche, an audio cassette tape and a programmed instruction booklet, for the training of sales staff in over 1,000 of its retail outlets.

In what appears to be a development originating in Europe, microfiche readers already installed in distribution networks for use with microfiche parts catalogues are being additionally put to use as training terminals. Bosch and Siemens in Germany are both using systems of this type, employing a special kind of aperture card containing from one to three strips of colour microfiche. These 'colour-microfiches' are of the same size as colour microfiche (International A6 size) and are for many purposes interchangeable with them. An audio cassette completes each self-instructional package.

In Britain, the construction equipment manufacturer Aveling-Barford (a Leyland Special Products company), which already employs a

wide range of audio-visual media in its product development activities, is just starting to introduce colour microfiche into the use of microfiche readers already existing in its distribution network.

The main advantages of colour microfiche in independent learning, compared, for example, with 35mm slides, are usually that production and postal costs are cheaper, and management of the learning materials is much easier. Furthermore, the design of modern microfiche readers, such as the Ekaltine range, means that the equipment is reliable and simple to operate.

There appears as yet to be no commercial service in this country for the production of colour microfiche, but orders may be placed with the United Kingdom agents of two United States companies offering the service. These are the Eastman Kodak Company (agents: Kodak Ltd, Hemel Hempstead, Herts) and Microfilm (agents: Nelson Thordell, Staines, Middlesex).

One factor that may be hindering the application of colour microfiche in education in Britain is that it is necessary to place a minimum order of 50 duplicates when ordering colour microfiche from either of the two commercial services accessible from the United Kingdom, and the price advantage of the medium is only really apparent when several hundred copies of the microfiche are ordered.

There is a need for the development of production methods for colour microfiche serving the needs of the individual user, who needs only a few copies of each microfiche. This may be a topic that one of the better-equipped universities or polytechnics could usefully take under its wing. Such a project might be viewed favourably (from the point of view of funding) by bodies like the Council for Educational Technology, the National Endowment for the Arts, and the National Centre for Documentation which are all interested in responding to this challenge.

Alan Horder is Senior Investigator (Head of Research) at the National Reprographic Centre for Documentation, Hatfield, Herts.

Scientific aids

Two new general purpose laboratory microscopes, the Reichert Microscop, have been developed by Reichert-Jung PK, the scientific division of British American Optical Co Ltd. All controls are said to be located for ease of operation and a flexible, easily loaded microscope in which only the later moves to focus objectives to specimen. This allows the stage to be rigidly locked to the stand to ensure a stable vibration-free system unaffected by hand pressure. However, it can be quickly unlocked to allow raising or lowering to accommodate specimens of varying thickness. In addition the focusing mechanism is maintenance free and is enclosed in the microscope stand assembly to protect it from dirt and damage. All instruments are available with annular, binocular or trinocular viewing tubes and a wide range of options are available.

Feedback Instruments Ltd has introduced a new range of instruments for the teaching of engineering and technology to coincide with the sixteenth Biennial Exhibition to be held in Brussels this April.

Of special interest will be a transistor amplified demonstrator that overcomes the problems of understanding transistor amplifier behaviour. The TAD 150 used in a laboratory with a standard X.Y. oscilloscope rapidly conveys the meaning of such terms as output, input and transfer characteristics, operating point bias, operating range and load line.

The Transformer Trainer TT 179 is another development which takes the student from basic concepts right through to industrial practice and the electronic systems teaching programme that represent a new approach in the teaching and communications and processing systems concepts.

Also new is an industrial electronic trainer, the IET 400, which enables the student to study a variety of circuits with provision for discrete components, digital and analogue integrated circuits and high-powered components.

Helpful screen hints on biochemistry

Last year the British Universities Film Council organized a screening of films and videotapes intended for use in university biochemistry courses. Biochemistry is primarily an experimental science and much of the material was concerned with practical aspects.

'How not to ruin your centrifuge', produced by the biochemistry department of University College, London, is a videotape intended for users of high-speed centrifuges and would be of interest to final year undergraduates and postgraduate students engaged in research.

Centrifugal rotors are highly machined, expensive items and the pitfalls involved in handling these cold, heavy and wet lumps of metal were vividly illustrated by examples from University College's 'black museum' which contains evidence of rotors damaged through misuse. If one considers the cost of a replacement rotor (up to £2,500) or the repair of a damaged drive mechanism (£4,000), not to mention the inconvenience of having a centrifuge out of action, this presentation is a valuable one and ought to be compulsory viewing for workers in biochemistry laboratories.

Another use of visual aid material is in practical classes. 'Membrane transport', produced by the department of medical biochemistry of Manchester University, is a good example of how the use of videotapes can circumvent some of the more difficult practical manipulations by the student, and still allow him to carry out the measurements on the particular phenomenon.

How the film is to study the transport of small molecules and ions through the cell membrane. The film shows the development of intestinal rings and

an example of the actual experimental measurements which the student will later be carrying out. This videotape has visual aids which are available in the form of a printed manual which would normally be beyond their competence to produce. At the same time the student sees the preparation of the biological system and thus is divorced from an appreciation of the experimental manipulations involved.

Biochemistry is concerned with highly organized structures, made up for the most part of large molecules. The use of film to present certain biochemical concepts should therefore provide certain advantages over the blackboard and the printed page. This was well illustrated by the videotape 'Biological membranes' presented by Professor D. Chapman.

Here the techniques used for isolating (and identifying) membranes are reviewed along with a summary of the chemical composition and structure of membranes. The physical properties of membranes are correlated with physical characteristics of their phospholipid components and, by the use of an excellent selection of electron microscopy images, the three-dimensional picture of the currently accepted view of membrane structure and function is built up.

In contrast, Dr H. Millmow's film on 'The fine structure of the cell' questions most of the conventional ideas on membrane structure and subcellular organization. His conclusions are based on the premise that concepts of subcellular structure must be compatible with observations of living cells by light microscopy.

He develops the thesis that geometrical considerations and physico-

chemical movement cannot be consistent with the existence of, for example, the endoplasmic reticulum and the classical bilayer membrane. Although these views are unlikely to gain general acceptance by the biochemical community, this is none the less a thought-provoking and challenging film and will well be shown to undergraduates.

The start of a new screening way undoubtedly Professor D. Phillips' presentation of 'The structure of lysozyme'. After a brief description of the antibacterial action of the enzyme the film presents the chemical composition and primary structure of the lysozyme molecule. The viewer is shown the X-ray diffraction apparatus in operation and the methods involved in translating the electron density maps into a three-dimensional picture of the structure. The presentation of the tertiary structure by computer animation is beautifully done. This film is an excellent example of the use of visual material to present concepts which would be extremely difficult to convey in any other way.

There is now a sufficient corpus of knowledge in biochemistry to justify the effort involved in preparing visual aids for use in undergraduate courses. In the face of worsening staff/student ratios, the advantages in terms of staff time are obvious. More important, the student is frequently better able to grasp practical and conceptual ideas if not presented on film or videotape than through textbook or lecture.

Robert Eisenthal is the author of a senior lecturer in biochemistry at the University of Bath.

Teach yourself to study with cassette and book package

How much do we really know about the way our students learn? Should we make assumptions about the nature of learning and infer study skills courses on the student majority in the hopes that the student will somehow grab a lifeline and are rescued from inefficient study styles?

These are particularly pressing issues when new students pour into higher education at the start of a new year and (unlike ones who have spent previous years at university) are new to the learning process. Learning habits. More could be done in the package to encourage students to examine and articulate their existing habits and then to experiment with alternative learning styles in the expectation that if found more efficient or satisfying the alternatives will be adopted.

Although the authors do not admit it, the package is mainly for science or technology students. There are, for instance, a number of presuppositions about the role of lecturers and note-taking which are valid for most science-based courses but not for many humanities courses.

These are relatively minor criticisms, however, of what is really a worthwhile and timely venture by experienced university teachers to help students cope with new learning experiences, but could I plead for a more generous sprinkling of humour and anecdote to lighten the mix in the second edition?

Effective Learning—A Practical Guide For Students: An Audio-Cassette and Book Study Package by J. J. Higgins, P. D. Crookes, R. B. Mayes and P. J. Hills. Tetbury, £4.97, ISBN 0 906078 00 7.

The authors are in the department of education services, Sheffield, City Polytechnic.

Robert Eisenthal

The author is senior lecturer in biochemistry at the University of Bath.

Stuart Trickey

The author is in the department of education services, Sheffield, City Polytechnic.

defines social problems essentially as contingent deviance. The framework provides a

BOOKS

An elementary difficulty

In *Electricity and Magnetism* Duffin has a much easier task. It is a subject more likely to be followed by an advanced course than in the case for mechanics, and there must be few first degree

course, that rigorously develop the whole of electromagnetism from the electrical interaction between two charges in the vacuum, the latter becomes traditional for particle mechanics. Its freedom in choosing starting and end points is consequently much greater.

Thus, at a simple but generally accurate and clear level of description, a wide range of topics is reached—dielectric polarization, magnetic hysteresis, the Hall effect, the microtransistor receiver. One may not expect complete or convincing analysis of all the phenomena of electric dipole—dipole interaction, but the literature itself illustrates the limitations.

For students whose preparation for starting physics at a British university is fragile, both books could greatly help reinforce their grasp of elementary ideas and prepare them for the deeper and more general analysis at present expected at a degree course. With *Electricity* and *Magnetism* probably demonstrating more convincingly the links between everyday experimental phenomena and the underlying theory, *Electricity* and *Magnetism* will, whichever the teaching rules, find a book of this type could become more central units than *Sound* and *F* levels?) will decide.

N. C. BURTON

ves

contributions on topics which have become important since the first edition was published. He extended the opening chapter with a lucid account of wave development from the initial conditions of Cauchy's data, through d'Alembert's formula to the myriad of characteristic closing this introduction with a discussion of the inhomogeneous wave equation and solutions by reflection.

His other modifications are essentially on nonlinear processes.

The chapter on longitudinal waves in new fluids with the micromechanics lattice and that on general topics now comprise the WKHJ method for wave propagation in an inhomogeneous medium. Here, the author has remained wholly classical—there is no hint of the success of this method in the early days of the wave mechanics of sub-atomic particles.

There is a new final chapter on non-linear waves which should find a response among aeronautical and hydrodynamic engineers. The method of characteristics is extended to the Burgers inviscidities and the book ends with a development of shocks from non-linear high amplitude sound waves.

and Least Squares", "Positive Definite Matrices" and "Linear Programming and Game Theory" which make this book useful for statisticians, economists, etc.

Beyond this material, the author gives a number of novel approaches to the theory and some ingenious proofs, for example he utilizes the diagonalization of Hermitian matrix from the easy fact that every matrix A is unitarily similar to an upper triangular matrix T . If A is Hermitian, then T is easily seen to be Hermitian also, but a triangular Hermitian

matrix is clearly diagonal
Professor Strong has written

The second edition is still available in World Student Series at £5.50

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book which successfully concentrates on the applications of linear algebra, with only the necessary abstractness, while retaining a good degree of rigour and yielding far further than usual into the myriad applications'. It should be a very useful main or supplementary text for first courses in linear algebra, and a good study text for those not pure mathematicians. Students who have had a pure linear algebra course and want to find out where linear algebra is good for will also find it useful.

David Singmaster

Linear Algebra and its Applications
by Gilbert Strang
ISBN 0-12-69502-2

Texts on Linear Algebra of
an introductory to more
subtle thought and indepen-
dent applications. Profess-
ors of mathematics have
written a book emphasizing
these.

The book is built on
the problems of linear algebra

may be making a gesture toward the physicists and engineers who now have a wider option in textbooks and who may prefer more descriptive flesh on the mathematical bones.

In covering such a wide field, the short book is necessarily limited in its range of comments beyond the mathematical structure but in some places the publishers might have offset the intellectual density of the text by more imaginative typography.

The 29 pages of chapter seven cover all the tlicory of electro-magnetic waves that an unlearned graduate would expect to know by the first paragraph states the "theoretical basis of the wave motion and everything develops from there. Now this is perfectly valid for the applied mathematician but it would be used by the physicist only as a revision text before his own course. The book's formulae and formulae of his first approach. On the other hand, the section immediately following has always been a much more introductory to such diverse subjects as the Doppler effect, amplitude modulation, group velocity, and the Gaussian beam.

The chapters on specific types of waves remain largely unchanged by

out in his consistent discussions of the cost and stability of procedures and his presentation of many topics not usually seen in linear algebra texts. Indeed, as he asserts, the book can be used as a text for course in numerical linear algebra and it seems eminently suitable for one.

out in his consistent discussions of the cost and stability of procedures and his presentation of many topics not usually seen in linear algebra texts. Indeed, the book is so well written that it can be used as a text for a course in numerical linear algebra and it seems eminently suitable for one.

I cannot list all the latest developments he covers, but in just the first chapter, "Gaussian Elimination," we find: operations convenient for Gaussian elimination, for solving $Ax=b$ with a new b , for computing the inverse of A , and for elimination when A is banded or upper triangular; the use of Gaussian elimination and partial pivoting; an example of replacing a second order differential equation by a difference equation and then a tridiagonal system of linear equations.

In later chapters, we find many other topics: the use of matrix analysis (singular value decomposition, exponential of a matrix, generalized eigenvalue problem) and from other topics (principal components analysis, the use of the Gram-Schmidt-Pearson generalized inverse, von Neumann's model of an expanding economy). There are entire chapters devoted to: Orthogonal Projection

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Colleges and Departments
of Art
Research Posts
Administration
Overseas
Adult Education
Librarians
General Vacancies

Official Appointments
Appointments wanted
Other classifications
Awards
Announcements
Exhibitions
Personal
Courses
Holidays and Accommodation

Universities



YORK UNIVERSITY

Toronto, Ontario, Canada
invites applications and nominations for the position of

Dean of the Faculty of Arts

The Faculty of Arts is the largest of York's ten faculties and is located on the main campus in northwest Toronto. It has a complement of 7,494 full-time faculty and approximately 180 part-time instructors in seventeen departments and divisions. The faculty offers a wide variety of programmes and courses in both disciplinary and interdisciplinary studies.

Candidates should have superior academic qualifications and relevant administrative experience with strong leadership ability. The term of office is for five years, with appointment starting July 1, 1979 (preferable but negotiable).

Please address enquiries and recommendations to:

The Secretary
Search Committee for a Dean of Arts
503-1055 Building
York University
4700 Keele Street
Downsview, Ontario, Canada
M3J 1P3

Applications will be received until February 28, 1978.

THE AUSTRALIAN NATIONAL UNIVERSITY

SCHOLARSHIPS FOR PhD DEGREE COURSES

Persons who hold, or expect to hold, a bachelor degree with at least upper second-class honours or equivalent from a recognised university and who have a capacity for research, are invited to apply for Australian National University PhD Scholarships, available over a wide range of subjects in the Humanities, Social Sciences, Biological, Chemical, Geological, Earth and Space Sciences. Scholarships are available in any of the departments or units of the Institute of Advanced Studies which consists of Research Schools of Physical Sciences, Biological Sciences, Social Sciences, Pacific Studies, Chemistry, Earth Sciences and the John Curtin School of Medical Research, at the School of General Studies (Faculty of Arts, Health Sciences, Economics, Law and Science) or in one of the University Centres.

Scholarship Benefits: The basic stipend payable is \$4,700 per annum (tax free) with additional allowances for maintenance and housing assistance for married scholars. In addition, return economy-standard air fares and a grant towards research expenses are normally provided. (The latter will not be provided for Australian citizens overseas who are eligible for Commonwealth Government Research Awards.)

Terms: Scholarships are normally tenable for three years and may be taken up at any time of the year.

There is no cut-off closing date, but applicants from outside Australia are advised to apply at least six months before they expect to be available to join as a scholar, if offered.

Full particulars and application forms are available from the Academic Registrar, The Australian National University, P.O. Box 4, Canberra, C.T. 2601, or from the Association of Commonwealth Universities (Acps), 33 Gordon Square, London WC1H 0DP.

UNIVERSITY OF KHARTOUM—SUDAN

Applications are invited for the following posts in the DEPARTMENT OF ARCHITECTURE:

- (1) PROFESSOR IN Architectural Science
- (2) LECTURER IN Construction Economics
- (3) LECTURER IN Building Construction
- (4) LECTURER IN General Architecture

Salary scales: Professor \$24,135 p.a.; Lecturer \$21,600 p.a.; Senior Lecturer \$20,071 p.a. The Sudanese Government may supplement salaries in range \$2,000-2,500 p.a. (depending on rank) for married applicants or single applicants (normally less than \$1,000 p.a.). (The latter will not be provided for Australian citizens overseas who are eligible for Commonwealth Government Research Awards.)

There is no cut-off closing date, but applicants from outside Sudan are advised to apply at least six months before they expect to be available to join as a scholar, if offered.

Full particulars and application forms are available from the Academic Registrar, The Australian National University, P.O. Box 4, Canberra, C.T. 2601, or from the Association of Commonwealth Universities (Acps), 33 Gordon Square, London WC1H 0DP.

UNIVERSITY OF STRATHCLYDE OF BIOCHEMISTRY

Applications are invited for appointment as Professor and Head of Department of Biochemistry in the School of Biological Sciences following the appointment of Professor P. J. H. Field as Dean of the Faculty of Science at the University of Strathclyde, New College Building, 204 George Street, Glasgow G1 1XV, with whom applications should be lodged by February 28, 1978.

CAMBRIDGE THE UNIVERSITY DEPARTMENT OF ENGINEERING

LECTURERSHIP IN INDUSTRIAL SOCIOLOGY
Applications are invited for a University Lectureship in Industrial Sociology, with special reference to the relations of management and personnel management or organisational behaviour. The person appointed will be expected to contribute to teaching and research in the field of industrial sociology. The person appointed will be expected to contribute to teaching and research in the field of industrial sociology. The person appointed will be expected to contribute to teaching and research in the field of industrial sociology.

Further information may be obtained from the Secretary of the Department of Engineering, University of Cambridge, 100 Brook Road, London W1P 0DT. Further particulars may be obtained from other sources.



UNIVERSITY OF SYDNEY

Applications are invited for the following posts in the DEPARTMENT OF ACCOUNTING:

LECTURER IN PHARMACEUTICS
Applicants should normally have a Bachelor's degree in Pharmacy, or equivalent, and a postgraduate degree in Pharmacy. The successful candidate will be expected to contribute to teaching and research in the field of pharmaceutical sciences. The person appointed will be expected to contribute to teaching and research in the field of pharmaceutical sciences.

UNIVERSITY OF QUEENSLAND LECTURER IN JAPANESE

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of Japanese and have a good knowledge of English and be experienced in teaching Japanese (written and spoken) to non-Japanese students. The person appointed will be expected to contribute to teaching and research in the field of Japanese studies.

LECTURERS IN ECONOMICS

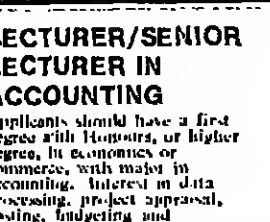
The Department of Economics wishes to appoint one or more lecturers to take up duties in 1978 or early in 1979. Applicants are invited from economists with special interest in any branch or branches of the discipline. Information about the Department, including details of its undergraduate and postgraduate teaching, research facilities, and current research interests of its members, is available from the Head of the Department, Professor Gordon Maitland, March 15, 1978.

UNIVERSITY OF NEW SOUTH WALES DIRECTOR OF THE SOCIAL WELFARE RESEARCH CENTRE

The Centre is to be established by the University with the financial support of the Australian Government to undertake and sponsor research on aspects of social welfare in Australia. The Director should have an understanding of Australian society and of the various systems which are likely to affect Australian social welfare. He or she will be expected to provide leadership in the planning and direction of the Centre's research programme and to develop and maintain effective collaboration with people from a wide range of disciplines and organisations. Applicants should have superior qualifications and relevant research experience in the social sciences as well as experience in the administration of research programmes. Salary will be at the professorial level. February 29, 1978.

UNIVERSITY COLLEGE, CORK PROFESSORSHIP OF SOCIAL THEORY AND INSTITUTIONS

The Governing Body invites applications for the above vacant office. The salary range is: £8,713 to £10,102 per annum. Increments for special professional experience. Non-contributory pension. Application form and further details of the post may be obtained from the undersigned. Latest date for receipt of applications is Tuesday, 28 February, 1978.



UNIVERSITY OF QUEENSLAND LECTURER/SENIOR LECTURER IN ACCOUNTING

Applicants should have a first degree with Honours or higher degree, in Accounting, or equivalent, with major in accounting, together with postgraduate study in accounting, together with postgraduate study in accounting, together with postgraduate study in accounting.

LECTURER/SENIOR LECTURER IN PHYSIOLOGY

The appointee will be required to teach courses in Physiology of the Human Body, and to supervise research in the field of physiology. The person appointed will be expected to contribute to teaching and research in the field of physiology.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

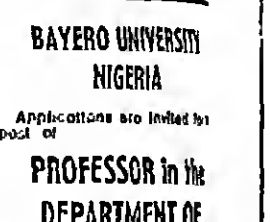
SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.



UNIVERSITY OF QUEENSLAND LECTURER IN MATHEMATICS

Applicants should possess a first degree with Honours or higher degree, in Mathematics, or equivalent, with major in mathematics, together with postgraduate study in mathematics, together with postgraduate study in mathematics.

LECTURER/SENIOR LECTURER IN PHYSIOLOGY

The appointee will be required to teach courses in Physiology of the Human Body, and to supervise research in the field of physiology. The person appointed will be expected to contribute to teaching and research in the field of physiology.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.

Universities continued

PAPUA NEW GUINEA UNIVERSITY OF TECHNOLOGY

READER/SENIOR LECTURER

Applications are invited for the following posts in the DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION. Candidates should possess a first degree with Honours or higher degree, in the relevant discipline, together with postgraduate study in the relevant discipline, together with postgraduate study in the relevant discipline.

SENIOR LECTURER/LECTURER POWER SYSTEMS ENGINEERING

Applicants should have a first degree with Honours or higher degree, in Electrical Engineering, or equivalent, with major in electrical engineering, together with postgraduate study in electrical engineering, together with postgraduate study in electrical engineering.

TECHNICAL INSTRUCTOR COMMUNICATION ENGINEERING

Applicants should have a first degree with Honours or higher degree, in Communication Engineering, or equivalent, with major in communication engineering, together with postgraduate study in communication engineering, together with postgraduate study in communication engineering.

TECHNICAL OFFICER (T.O.1-T.O.2.) POWER SYSTEMS/MECHANICAL LABORATORY

Applicants should have a first degree with Honours or higher degree, in Electrical Engineering, or equivalent, with major in electrical engineering, together with postgraduate study in electrical engineering, together with postgraduate study in electrical engineering.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.

AHMADU BELLO UNIVERSITY, NIGERIA

PROFESSOR OF EDUCATION IN THE FACULTY OF EDUCATION

Applications are invited for the following posts in the DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION. Candidates should possess a first degree with Honours or higher degree, in the relevant discipline, together with postgraduate study in the relevant discipline, together with postgraduate study in the relevant discipline.

BUSINESS EDUCATION SECTION SENIOR LECTURER

Applicants should have a first degree with Honours or higher degree, in Business Education, or equivalent, with major in business education, together with postgraduate study in business education, together with postgraduate study in business education.

HOME ECONOMICS SECTION LECTURER

Applicants should have a first degree with Honours or higher degree, in Home Economics, or equivalent, with major in home economics, together with postgraduate study in home economics, together with postgraduate study in home economics.

AGRICULTURAL EDUCATION SECTION SENIOR LECTURER/LECTURER

Applicants should have a first degree with Honours or higher degree, in Agricultural Education, or equivalent, with major in agricultural education, together with postgraduate study in agricultural education, together with postgraduate study in agricultural education.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.

UNIVERSITY OF CALABAR—NIGERIA

PROFESSOR OF EDUCATION IN THE FACULTY OF EDUCATION

Applications are invited for the following posts in the DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION. Candidates should possess a first degree with Honours or higher degree, in the relevant discipline, together with postgraduate study in the relevant discipline, together with postgraduate study in the relevant discipline.

BUSINESS EDUCATION SECTION SENIOR LECTURER

Applicants should have a first degree with Honours or higher degree, in Business Education, or equivalent, with major in business education, together with postgraduate study in business education, together with postgraduate study in business education.

HOME ECONOMICS SECTION LECTURER

Applicants should have a first degree with Honours or higher degree, in Home Economics, or equivalent, with major in home economics, together with postgraduate study in home economics, together with postgraduate study in home economics.

AGRICULTURAL EDUCATION SECTION SENIOR LECTURER/LECTURER

Applicants should have a first degree with Honours or higher degree, in Agricultural Education, or equivalent, with major in agricultural education, together with postgraduate study in agricultural education, together with postgraduate study in agricultural education.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

UNIVERSITY OF ZAMBIA

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Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.

NATIONAL UNIVERSITY OF LESOTHO

SENIOR RESEARCH FELLOW AND RESEARCH FELLOW

Applications are invited for the following posts in the DEPARTMENT OF VOCATIONAL AND TECHNICAL EDUCATION. Candidates should possess a first degree with Honours or higher degree, in the relevant discipline, together with postgraduate study in the relevant discipline, together with postgraduate study in the relevant discipline.

BUSINESS EDUCATION SECTION SENIOR LECTURER

Applicants should have a first degree with Honours or higher degree, in Business Education, or equivalent, with major in business education, together with postgraduate study in business education, together with postgraduate study in business education.

HOME ECONOMICS SECTION LECTURER

Applicants should have a first degree with Honours or higher degree, in Home Economics, or equivalent, with major in home economics, together with postgraduate study in home economics, together with postgraduate study in home economics.

AGRICULTURAL EDUCATION SECTION SENIOR LECTURER/LECTURER

Applicants should have a first degree with Honours or higher degree, in Agricultural Education, or equivalent, with major in agricultural education, together with postgraduate study in agricultural education, together with postgraduate study in agricultural education.

UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

SENIOR LECTURER IN BUSINESS AND ECONOMIC STUDIES

Applicants should have a B.A. or higher degree from a recognised university and be a native speaker of English and have a good knowledge of English and be experienced in teaching Business and Economic Studies. The person appointed will be expected to contribute to teaching and research in the field of Business and Economic Studies.

UNIVERSITY OF ZAMBIA

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UNIVERSITY OF ZAMBIA

Applications are invited for the following posts in the DEPARTMENT OF BUSINESS AND ECONOMIC STUDIES:

Further information may be obtained from the Secretary of the Department of Business and Economic Studies, University of Zambia, P.O. Box 323, Lusaka, Zambia. Further particulars may be obtained from other sources.

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**POLYTECHNIC OF THE
SOUTH ISLAND**
DEPARTMENT OF CIVIL
ENGINEERING

The Department of Health has been asked to consider the possibility of introducing a new type of health insurance scheme which would cover all people in the country.

the 1980s, the major policy priority was to develop the infrastructure of the Hong Kong-Liaoning corridor. Since 2000, the focus has shifted to the development of the central and eastern coastal regions. The development of the central and eastern coastal regions will be the focus of the government's development policy in the next 10 years.

POLYTECHNIC OF THE SOUTH BANK
DEPARTMENT OF
MATHS AND PHYSICS

AND COPYRIGHT,
 IN THE PUBLIC INTEREST
 OF THE NATION
 (1909, 1929)
 (Revised)
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 education. It will be the
 with effect from October 1st
 April or 1st September, 1909.
 (1909, 1929)

range of courses up to final year II Sc, in Mathematics and Computing, and M Sc in Mathematical Education. They should have industrial and/or teaching experience, a broad-based knowledge of IT theory and practice and sufficient knowledge of studies in progress.

Further particulars and application forms from the Station Officer, Room 10711, Polytechnic of the South Bank, Rotherhithe Road, London SE16 6AA. Tel: 01-928 8899.

SHEFFIELD
CITY POLICE
DEPARTMENT OF BUILDING
CONSTRUCTION
DEVELOPMENT
Salary Scale £3,452 to
£7,141 (Char) to £10,070.
Applicants should possess
relevant qualifications and ex-
perience and proven research

candidate will be required to lead and develop the research activities of the Department and also teach their specialist areas of interest.

DEPARTMENT OF HUMAN AND INTERNATIONAL STUDIES
RESEARCH ASSISTANT
 Salary Scale: A2,601 - \$5,079
 A Research Assistant is required to undertake work

policy in the provision of private garden space within the residential area. Applicants should have recently obtained a good honours degree in natural science or a discipline involving study of the built environment. The successful candidate will have an understanding of social research methods and, preferably, of the main trends in planning.

The applicant will be for a fixed term of two years on the Research Assistant will be expected to seek registration for the CNAA degree in M Phil.

Enquiries for application forms is writing only please to the Personnel Department, Sheffield City Polytechnic (Dept. T.H.E.S.), Hallford House, Fitzalan Square, Sheffield S1 1UL.

by 17th February, 1978.

LEICESTER
THE POLYTECHNIC
PRINCIPAL LECTURESHIP IN
PHARMACEUTICAL CHEMISTRY
(Post 6-7)

This is a key position within the School of Pharmacy as the person appointed will be responsible for the overall organization of the section and will play a prominent role in its

The B.Sc. in Pharmacy is a four-year program. The first two years are devoted to the study of the basic sciences of chemistry, physics, and biology. The last two years are devoted to the study of the pharmaceutical sciences. The program is designed to prepare graduates for entry-level positions in the pharmaceutical industry or for further study in pharmacy.

Subject: **Salary \$6,432 to \$7,110 (bar) \$6,070 p.a. (inclusive of emoluments).**
Annularia form and further details available from Staffing Officer, Leicester Polytechnic, P.O. Box 143, Leicester LE1 7RH. Tel.: 105331 80111 Fax: 2381.

Universities continue

**ST. JOHN'S COLLEGE,
Nottmham**

Applications are invited for a

**LECTURESHIP IN
CHRISTIAN DOCTRINE**

on an additional appointment in
the College. The appointment
will be for two years in the

Details from The Principal
Applications to be submitted
by February 17.

Rhodes University

Grahamstown
South Africa

Applications are invited for the following posts from July 1, 1978, or as soon as possible thereafter:

STELLA AND PAUL LOEWENSTEIN CHAIR OF DEVELOPMENT STUDIES
(for five years initially)

SENIOR LECTURER/LECTURER IN BUSINESS ADMINISTRATION

SENIOR LECTURER/LECTURER IN COMPUTER SCIENCE

SENIOR LECTURER/LECTURER IN EDUCATION

SENIOR LECTURER/LECTURER IN GEOGRAPHY (from January 1, 1979)

SENIOR LECTURER/LECTURER IN LINGUISTICS

SENIOR LECTURER/LECTURER IN MATHEMATICAL STATISTICS

SENIOR LECTURER/LECTURER IN PSYCHOLOGY (from January 1, 1979)

(Specialization in Industrial Psychology)

SENIOR LECTURER/LECTURER IN ZOOLOGY

LECTURER/JUNIOR LECTURER IN ANTHROPOLOGY (from January 1, 1979)

LECTURER/JUNIOR LECTURER IN ORGANIC CHEMISTRY

LECTURER/JUNIOR LECTURER IN PHARMACEUTICAL MICROBIOLOGY

(from January 1, 1979)

The salary scales are:-

Professor

R10,800 by R450 to R12,600 by R800 to R13,800 per annum

Senior Lecturer

R6,460 by R360 to R9,900 by R450 to R11,250 per annum

Lecturer

R6,300 by R360 to R9,180 per annum

Junior Lecturer

R4,920 by R180 to R5,100 by R240 to R6,300 by R360 to R6,860 per annum

(Note: £1 sterling equals approximately R1.59)

This initial salary in each case will be determined according to qualifications and experience. In addition a supplement of 10 per cent on the above scales and a vacation savings bonus are payable. The successful applicants will become members of the University's pension and medical aid schemes.

Further particulars and application forms may be obtained from the South African Universities Office, Chichester House, 276 High Holborn, London, Telephone: 01-242 1706. One copy of the application should be sent to the South African Universities Office and one copy together with a recent photograph direct to the Registrar, Rhodes University, Grahamstown, South Africa, by March 15, 1978.

ASIAN INSTITUTE OF TECHNOLOGY
BANGKOK

The AIT, established in 1959, is situated in Thailand on a 400 acre campus 42 km north of Bangkok. The Institute is an international autonomous, postgraduate engineering institution governed by an International Board of Trustees. Students from twenty Asian countries and an international faculty are involved in advanced education in engineering, science, and allied fields. The Institute's plant and laboratory facilities are equipped. Support for AIT comes from twenty governments throughout the world and numerous international organizations. Two Australian serve on the Institute Board of Trustees and link arrangements have been established with a number of universities in Australia. The Australian Government under an aid grant of \$2 million is providing funds for Australian staff positions, for which the University of Wollongong will act as the sponsoring agency.

LANGUAGE AND MEDIA CENTRE

Applications are invited from Australian citizens for appointment to the following positions in the above Centre:

Faculty Staff (2 positions) (Ref. A1/78)

Applicants should be prepared to work as a member of a small team in both the conducting of technical English language classes and the production and testing of material. A postgraduate qualification relevant to the teaching of English as a second language would be an advantage, and the successful applicant will also have had considerable experience, preferably at university level.

Media Specialist (Ref. A2/78)

Applicants will be expected to set up and administer an audio-visual service for the Institute, with particular emphasis on TV work. The successful applicant will probably have a postgraduate qualification in Audio-Visual Education or Communication, and will be expected to have had several years' practical experience in the field. Preference will be given to applicants with a background in the production and presentation of materials rather than those with a technical background, though some technical knowledge would be an advantage.

For the above positions, 2 year renewable contract appointments are available with attractive conditions and negotiable Australian based salaries. Levels of appointment will depend on qualifications and experience. Secondment from present appointments is negotiable. Applications requiring reference number, and including curriculum vitae and the names and addresses of three referees should be sent, before 1st March, 1978, to the Academic Appointment Officer, University of Wollongong, P.O. Box 1144, Wollongong, N.S.W., 2500, from whom further information is available. Please mark envelope "Confidential-AIT Appointment".

TECHNICIANS

Teaching Positions in Algeria with Gas Development Corporation, an American Company subsidiary of Institute of Gas Technology, International in English, knowledge of French helpful.

LECTURERS

Headed at Army Technology Training School. Requires teaching or field experience for teaching in: plant maintenance, aircraft generation, atom and gas turbines, chemical and refinery operations, instrumentation/process control, gas regulation, measurement/presentation, FMS storage/handling, workshop technology.

\$24,000 minimum base: several months to 2 year contracts including paid housing/air passage (baggage allowances). 2 year also includes: family allowance/one month annual vacation/holiday round trip vessel fare/medical insurance. Submit detailed resume, salary history, and availability for interviews to: Dr. John A. Toke, Dept. of Officer-Education Services, Institute of Gas Technology, 2424 S. State Street, Chicago, Illinois 60616.

OVERSEAS
TEACHING POSTSThe British Council invites applications for the following posts:
LECTURER IN ENGLISH (SOUTH AFRICA)

University of Fort Hare, Alice. Lecturer to run Practical English Course for Xhosa-speaking students. Ongoing in English and experience of tertiary level English teaching essential. One-year University qualification in TESL desirable. Single candidature only. Salary: £4,490 to £8,514 per annum approximately.

Benefits: Free furnished accommodation, employer's portion of United Kingdom superannuation; three-year contract. 77 HU 62

ELT ADVISER (CAMEROON)

South West Provincial Delegation for Education, Buea. To advise on English Language teaching at Primary, Secondary and Teacher Training levels. Degree, teaching qualification and M.A. in Applied Linguistics (or one-year University diploma in TEFL/ TESL); at least 4 years' relevant experience, preferably overseas and in teacher training. Good French.

Salary: £1,589 to £5,818 per annum plus 10 per cent inducement. Benefits: Personal and children's allowances; free furnished accommodation; two-year contract, 77 HU 9

LECTURERS IN TECHNICAL SUBJECTS (NIGERIA)

Heads of Department, Senior Lecturers and Lecturers in Civil Engineering and Building Environmental Studies; Senior Lecturers, Lecturers in

Mechanical and Production Engineering, Electrical and Electronics Engineering, Metallurgical Engineering, Science and Technology, Biology, Nigerian. To suit up, ongoing, teach courses in this recently established but rapidly developing institution.

Qualifications: good degree with unit qualification plus teaching experience. Salaries: Head of Department, Naira 8,000 to 9,000 per annum; Senior Lecturer, Naira 7,104 to 7,752 per annum; Lecturer, Naira 5,460 to 6,108 per annum (C1 equals Naira 144; present ratio of exchange).

Benefits: 10 per cent to 15 per cent contract addition and 15 per cent gratuity; low rental housing; two-year contracts, 77 HU 9

The British Council

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LETTERS TO THE EDITOR

Literacy the confidential and confident way

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DIRECTOR

The Council of the Caulfield Institute of Technology is seeking to fill the position of Director following the appointment of the recent incumbent as Vice-President of the Victoria Institute of Colleges. Council invites applications from interested parties and would welcome the names of persons whom Council may contact.

The Director is Chief Executive of the Institute and is responsible to the Council for the academic development and the administration of the Institute. This position is suited to an academic administrator who can demonstrate flexibility and innovative skill in a dynamic situation.

The Institute has experienced considerable growth in student numbers (present enrolments are 6,200), expansion of courses and development of teaching facilities. There are four Advanced Education Schools offering a wide range of diploma, degree and post graduate programmes in Applied Science, Business, Engineering, and General Studies. The Schools of Industrial Studies and Orientation Studies conduct courses at the Technical and Further Education level.

Benefits of this position include a salary, at present A\$37,026, plus use of a vehicle. Reasonable removal expenses will be met.

Full details of the position are available from the President of Council with whom applications close on 7 April, 1978.

Correspondence should be addressed to Mr. G.N. O'Leary, President of Council, Caulfield Institute of Technology, P.O. Box 197, Caulfield East, Victoria, Australia, 3145.

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900 Oanderton Road, Caulfield East,
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Overseas continued

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THOMAS CORLETT

SCHOOL OF HUMAN

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Applications are invited for the post of Lecturer in the School of Human Sciences and Technology. The successful applicant will be responsible for the teaching and supervision of students in the field of Human Sciences and Technology. The post is full-time and involves a salary of £12,000 per annum. Applications should be sent to the Director of the School of Human Sciences and Technology, Thomas Corlett School of Human Sciences and Technology, 100, The Quadrant, London SE3 1QJ.

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